SMILE 2024

SSLC-BIOLOGY (ENGLISH)

LEVEL 1

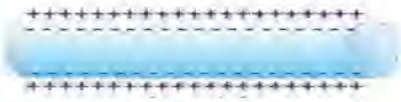
Sensations and responses

1. Find out the word pair relation and fill in the blanks.

Myelin sheath in Nerves : Schwann cells
Myelin sheath in Brain and Spinal cord : _____

Ans : Oligodendrocytes.

2.



a) Name the action takes place in the above illustration.
b) What is the reason for the charge difference on the both side of the plasma membrane ?

Ans : a) Impulse transmission
b) The difference in the distribution of certain ions

3 a) Which fluid is seen within the inner membranes of meninges ?
b) Write the other parts in the nervous system where this fluid is seen ?
c) What are the functions of this fluid ?

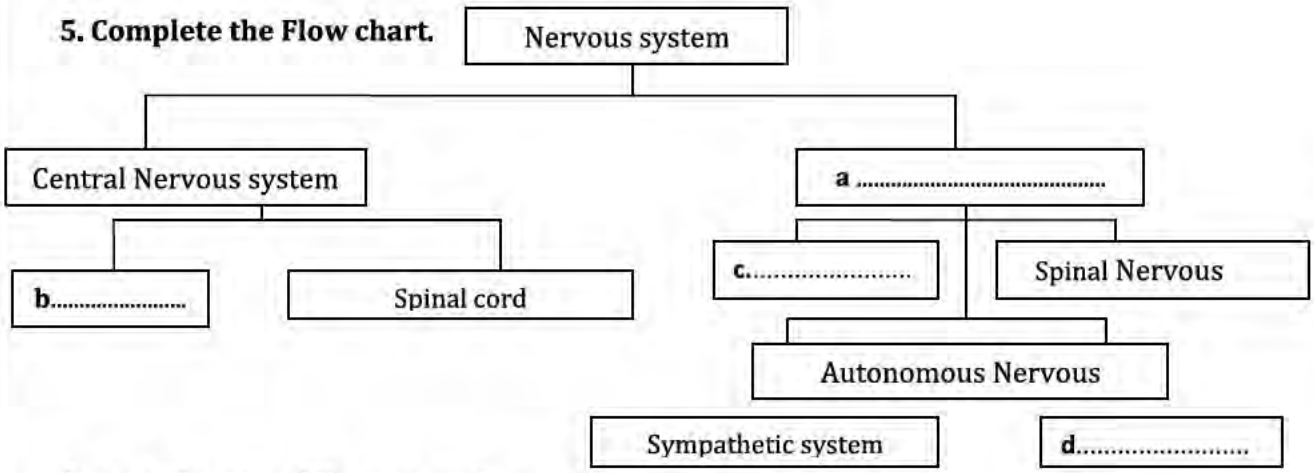
Ans: a) CSF (Cerebrospinal fluid)
b) Layers of meninges in Spinal cord and brain ,Ventricle of brain
C) Protect the Brain and spinal cord from injuries.
Provide nutrients and oxygen to the tissues of the brain.
Regulate the pressure inside the brain

4. Find out the word pair relation and fill in the blanks

Cerebrum : cerebral reflex .
Spinal cord : _____

Ans: Spinal reflex

5. Complete the Flow chart.



Ans . a .Peripheral Nervous system
b. Brain.
c. Cranial nerves.
d. Para sympathetic system.

6. Complete the table.

Organ /parts	Symapathic system	Para sympathic system
Trachea	a)_____	b)_____
c)_____	Glycogen is converted into glucose	d)_____
e)_____	f)_____	Peristalsis becomes normal

An. a) Trachea expands b) trachea contracts
c) liver. d).glucose is converted into glycogen.
e) intestine f) peristalsis slow down

Chapter .2
Windows of knowledge

1. Given below are the changes that occur in the eye ,while observing objects . list them with appropriate headings.
   a) ligaments relax
   b) Ciliary muscles relax
   c) Curvature of lens decreases
   d) Ciliary muscles contracts
   e) Ligaments stretch
   f) Curvature of lens increases

Ans;

While viewing nearby objects	While viewing distant objects
a	**b**
d	**c**
f	**e**

2. Fill in the blanks

In bright light, ……**a**……Contracts.
In dim light, ……**b**……Contracts.

Ans. a) circular muscles b) radial muscles

3. Fill in the blanks appropriately.

Rod cell ---------> **a** -------> retinal + **b**
c ---------> photospin -------> **d** + opsin

Ans a) Rhodopsin b) Opsin
C) Cone cell d) Retinal

4. "This part Connects middle ear to pharynx"
a. Which part is mentioned in the above statement ?
b. Write a function of this part?

Ans a)Eustachian tube
b)Regulate the pressure on both side of the tympanum.

5. Given below are the various stages related to the experience of hearing **.** write them in order.
a) Sound waves vibrates tympanum
b) Impulses reach the cerebrum through auditory nerve
C) Ear ossicles vibrates
d) Hair cells in the organ of the corti of cochlea are stimulated.
e) The membrane of oval window vibrates
f) The fluid present in the cochlea moves

Ans. a -c -e -f-d-b

Chapter 3.
Chemical messages for homeostasis

1 Find out the word pair relation and fill in the blanks.

Alpha cell : Glucagon
Beta cell : _____

2 write the below given activities of hormones in target cells in correct order **.**
a) Enzymes are activated
b) Changes occur in cellular activity
c) Hormone reaches in the receptor
d) Form hormone- receptor complex

Ans :c, d, a, b

3 Find out the odd one and write the common feature of others **.**
Cytokinin, Testosterone , Estrogen, Progesterone

Ans: Cytokinin, others are sex hormones

4 . "A substance in liquid form applied to rubber trees **.** It turns into a hormone and increase the latex production in rubber trees **.**
a) Name the substance in liquid form.
b) Which is the hormone **.**

Ans a. Ethyphon
b. Ethylene

(PTO)

CHAPTER – 4 KEEPING DISEASES AWAY

1) Analyse the following symptoms and answer the questions that follow .

* Throat pain * inflammation in the lymph glands of the throat.

* Ash coloured thick coating in the throat

a) Identify this disease .

b) Name the pathogen of this disease ?

c) How does this pathogen destroy the cells and cause disease ?

d) What is the reason for the swelling of lymph glands in the neck ?

Ans :- (a) Diphtheria **(b)** Corynebacterium diphtheriae **(c)** The toxins produced by the pathogen destroy the cells and cause disease.

(d) When pathogens attack the body, lymph glands act efficiently and produce Lymphocytes to destroy the pathogens

2) Below given is the change occur to RBC's in a genetic disease.

a) Identify this disease .

b) What is the reason for the change in the structure of RBC's ?

c) What are the problems occur in these patients due to the change in the structure of RBC's ?

Ans :- a) Sickle cell anaemia

b) Due to the defect of genes, changes occur in the arrangements of amino acids in the Haemoglobin and structure of Haemoglobin changes

c) Oxygen carrying capacity of red blood cells decreases. The sickle shaped RBCs get collected in the blood vessels and block the flow of blood in them..

3) a) Identify this pathogen.

b) How does this pathogen multiply when reaches in our body ?

c) Why did the condition of this disease become more fatal ?

Ans :- a) HIV virus **(b)** Multiplies using the genetic mechanism of lymphocyte.

c) The number of lymphocytes decreases considerably and reduces the immunity of the body. Various other pathogens which enter the body make the condition more fatal..

(PTO)

4) Below given is the descriptions of certain diseases .

a) Write the name of the diseases , name of the pathogen, vector and symptoms in the given boxes..

*** Plasmodium, Female Anopheles mosquito, * Culex mosquitoes**

*** High fever with shivering * Profuse sweating * Swelling in the lymph ducts.**

*** Filarial worms**

Disease	Pathogen	Vector	Symptoms

b) How can we prevent these diseases ?

Ans :- (a)

Disease	Pathogen	Vector	Symptoms
Malaria	Plasmodium	Female Anopheles mosquito	* High fever with shivering * Profuse sweating
Filariasis	Filarial worms	Culex mosquitoes	Swelling in the lymph ducts.

(b) * Eradication of Mosquitoes * Clean the surroundings * Observe dry day

5) How does smoking affect following organ systems ?

a) Nervous system **(b)** Respiratory system **(c)** Circulatory system

Ans :-

Nervous system (Brain)	Respiratory system (Lungs)	Circulatory system (Heart)
*Stroke * Addiction to nicotine	* Lung cancer * Bronchitis * Emphysema	* Hypertension * Loss of elasticity of arteries * Decrease in functional efficiency

6) Below given is the details of a genetic disease

***** Due the defect of genes certain plasma proteins are not produced

a) Identify this disease.

b) Write the symptom of this disease ?

c) How can we give temporary relief to these patients ?

Ans :-

a) Haemophilia **(b)** Excess blood is lost even through minor wounds.

c) Identifying and injecting the deficient protein.

7) Find out the odd one and write the common feature of others

Tuberculosis, Rat fever, Blight, Quickwilt

Ans :- Quickwilt, Others are bacterial disease.

(PTO)

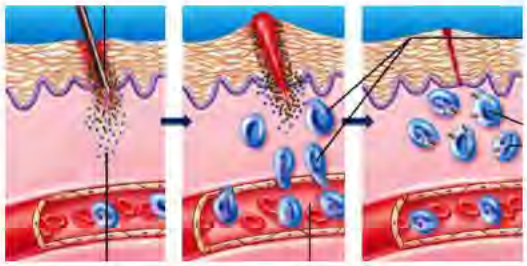
CHAPTER – 5 SOLDIERS OF DEFENSE

1)

a) Identify this picture
b) How does this part help in defense mechanism ?
c) Write another function of this part in Nose ?

Ans :- a) Mucous membrane
b) * Pathogens trapped in the mucus produced by this membrane, get destroyed.
* The destroyed germs are expelled out by the cilia cells of the mucous membrane.
c) Mucous produced by this part helps to dissolve the olfacory particles and help in experiencing smell.

2)



a) Identify this process
b) Which WBC helps to produce chemicals in this process ?
C) Which WBC helps to dilate the blood vessels ?

Ans:-
a) Inflammatory response **(b)** Eosinophil **(c)** Basophil

3) Find out the odd one and write the common feature of others.
Eosinophil, Basophil , Monocyte, Lymphocyte
Ans:- Lymphocyte. Others are inlcuded in Non –specific defense.

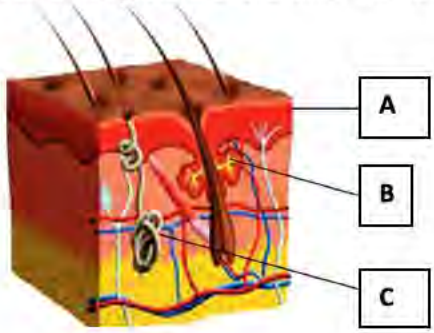
4) Analyse the following blood report and answer the questions that follow

Complete blood count (CBC)		
Test details	**Test result**	**Normal Value**
Haemoglobin	**12.2** gm /100 m.l of blood	**12 – 17** gm /100 m.l of blood
Number of WBC	**12000** / m.l of blood	**500 - 10000** / m.l of blood
RBC	**50** Lakhs/ m.l of blood	**45** lakhs to **60** lakhs/ ml of blood
Number of platelets	**3.4 60** lakhs/ ml of blood	**2.5** lakhs to **3.5** lakhs/ ml of blood
Neutrophils	Above the normal level	
B- Lymphocyte	Above the normal level	

a) What is your opinion about the health condition of this person ?
b) Pathogen in which category is responsible for disease in this person ?
c) Which type of medicines will be effective in this person **?**

Ans :- a) Due to an infection number of WBC's increased
b) Bacteria
c) Antibiotics.

5) Observe the picture and answer the following questions



a) Protein seen on the area labelled as **A** .
b) How does the gland seen on **B**, protects the skin ?
C) Write the name of gland labelled as **C**.

Ans :- a) Keratin
b) Sebum produced by the sebaceous gland makes the skin oily and water proof.
c) Sweat gland

6) A person with **A** blood group can't donate blood to another person with **B** blood group. Why ?

Ans:- The antigen present in the **A** blood and the antibody present in the **B** blood group will react with each other and form a blood clot.

7) Identify the following WBC's and write the following statements correctly in a table , by giving a suitable
title.

.

A

B

* Destroy the bacteria by disintegrating their cell membrane.
* Destroy the cells affected by virus.
* Mature in the Thymus gland.
* Mature in the Bone marrow.
* Neutralise the toxin of the antigens.
* Destroy cancer cells.

Ans :- A) B- Lymphocyte. **(B) T-** Lymphocyte

B- Lymphocyte	**T-** Lymphocyte
Mature in the Bone marrow	Mature in the Thymus gland.
Destroy the bacteria by disintegrating their cell membrane	Destroy the cells affected by virus.
Neutralise the toxin of the antigens.	Destroy cancer cells.

8) Complete the table

Blood group	Antigen	Antibody
A +	-------, ----------	.....
B-	.....	a
AB+	A, ---- , ------	.....
O+	.....	.....

Ans :-

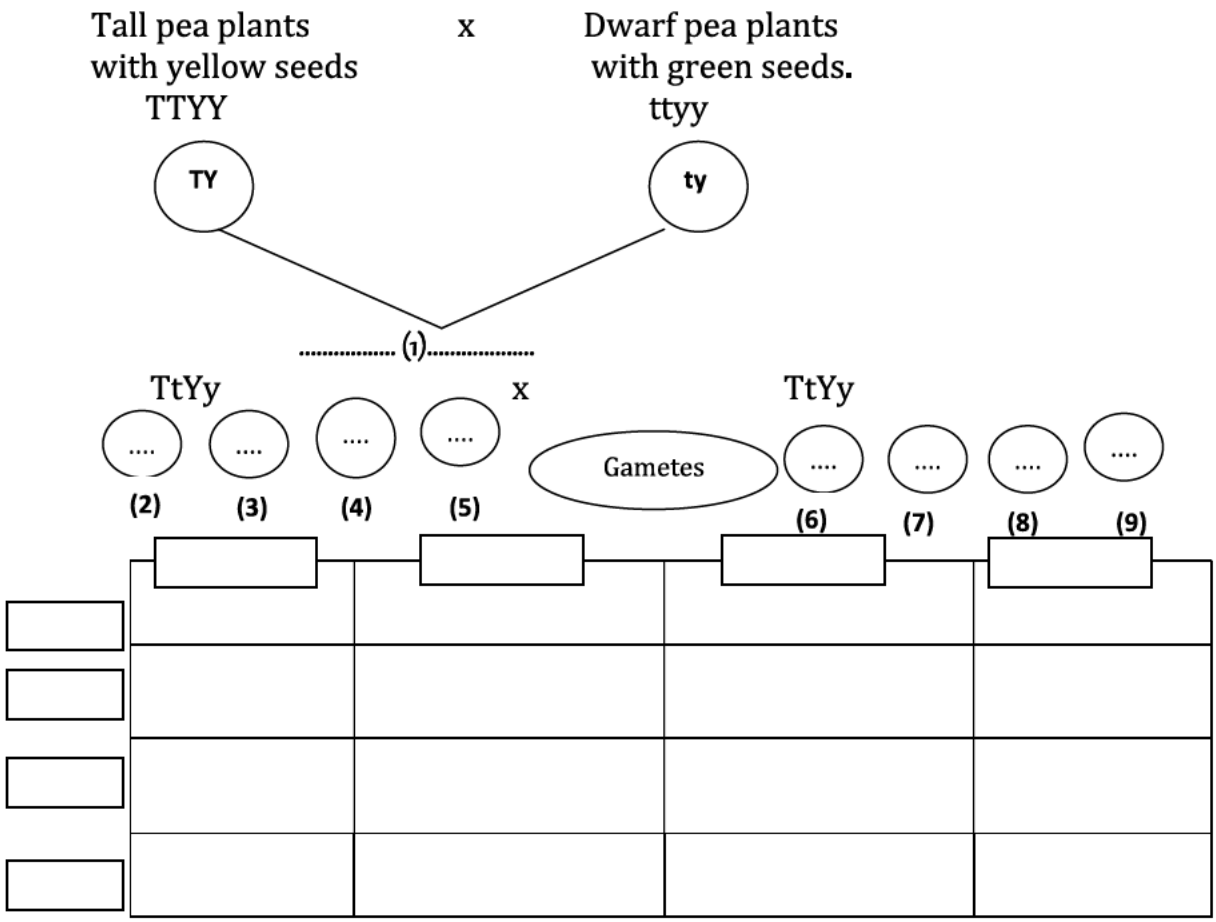
Blood group	Antigen	Antigen
A +	A, D	b
B-	B	a
AB+	A, B , D	Nil
O+	D	a , b

Chapter 7.
Unravelling Genetic Mysteries.

1. Write down the inferences of Mendel.

Ans. a. A character is controlled by the combination of two factors.
b. One trait is expressed (dominant) and the other character remain hidden(Recessive)in the offsprings of the first generation.
c. The traits which remains hidden in the first generation appears in the second generation.
d. The ratio of the dominant character and recessive character in the second generation is 3:1

2. Complete the illustration.



Ans. 1.TtYy (2) TY (3).Ty (4) tY (5) ty (6) TY (7) Ty (8) tY (9) ty.

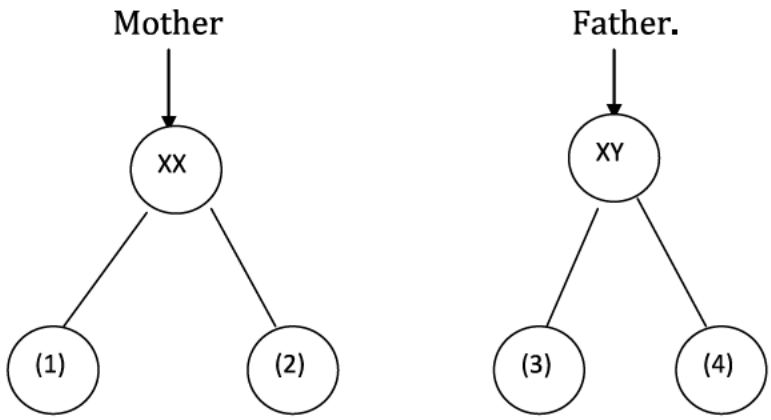
	TY	**Ty**	**tY**	**ty**
TY	TTYY	TTYy	TtYY	TtYy
Ty	TTYy	TTyy	TtYy	Ttyy
tY	TtYY	TtYy	ttYY	ttYy
ty	TtYy	Ttyy	ttYy	ttyy

3. Genetics conveys the message that all human being are one**.** Analyse this statement**.**

Ans : Humans everywhere in the world have 46 chromosomes**.** Humans are more alike except for some adaptations to live in different environment.

Eg**.** Difference in skin colour among humans is not based on caste difference. Biologically, All Human are of the same species.

4. Observe the illustration and answer the questions that follow.



a. Which type of chromosomes do the letters XX, XY indicate ?

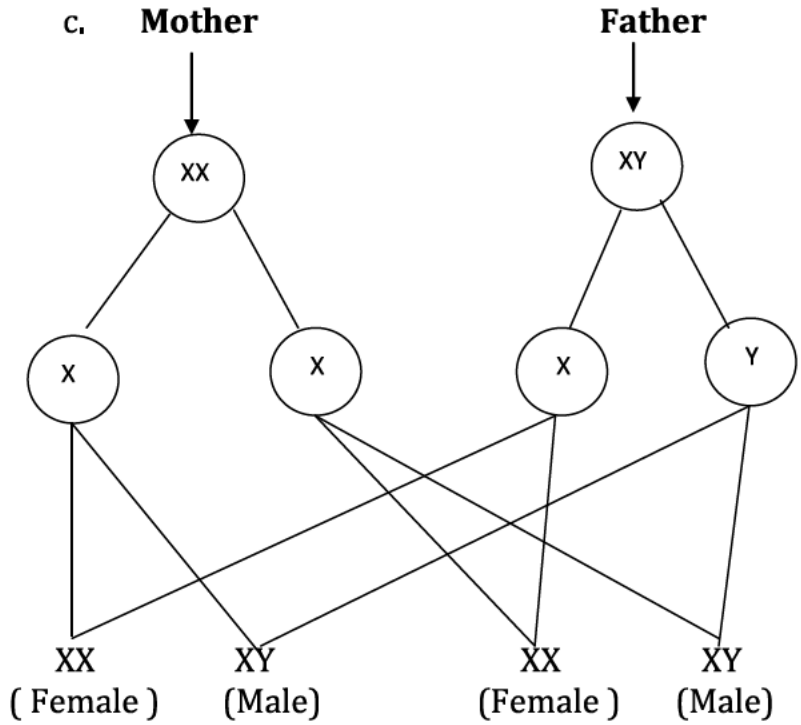
b. Fill up I, II, III, IV

c. Illustrate the possibility of formation of male or female child.

Ans. a. Sex chromosomes.

b. 1-X, 2-X, 3 -X, 4-Y

c.



5. The following table shows the number of offsprings produced in second generation on self pollinating a pea plant with yellow cotyledons (Xy)

Characteristics	Number
Pea plants with yellow cotyledons	307
Pea plants with green cotyledons	104

a) Which character is dominant in F1 generation ?
b) What will be the approximate ratio of offsprings in F2 generation ?

Ans : a) Pea plants with yellow cotyledons
b) 3:1

Chapter - 7. Genetics of the Future.

1. Make suitable pairs.

a. To prove crimes.
b. Non- functional genes.
c. Finding the position of number of genes on DNA
d. To change the genetic structure.
e. Gene mapping.
f. DNA finger printing.
g. Genetic engineering.
h. Junk genes.

Ans: **a-f, b-h, c-e, d-g**

2. Animals yielding medicines are much better idea than microbes yielding medicine. Analyse the statement.

Ans. It is not easy to grow the microbes and to take care of them. Animals can be reared easily. Medicines can be produced from animals by ligating desired genes in them. The medicines can be extracted either from blood or from milk.

3. Analyse the following news report and answer the questions.

To trap the culprit, police seeks the help of genetic engineering technology.

a. Write the name of the genetic engineering technology mentioned here.
b. How are the culprit identified through this technology ?

Ans. a. DNA finger printing /DNA testing.
b) DNA from skin, hair, nail, blood and other body fluids obtained from the place of murder, robbery etc.is compared with the DNA of suspected persons. Thus, the rural culprit can be identified from among the suspected persons through this method.

4. Match the columns B and C, according to A.

A	B	C
Restriction endonuclease	Bacterial DNA	Cutting of genes
Ligase	Virus	Joining of genes
Plasmid	Genetic scissors	DNA
	Genetic glue	Vectors.

Ans.

A	B	C
Restriction endonuclease	Genetic scissors	Cutting of genes
Ligase	Genetic glue	Joining of genes
Plasmid	Bacterial DNA	Vectors.

5. Few lines from a science article are given below. Read them and answer the questions.

> Genetic engineering has made great advance mart in the treatment of diabetes and hereditary diseases. This is possible.....

a. Do you agree with this statement? How is this technology used in the treatment of diabetes.?
b. Which are the other possibilities of this technology.?

Ans. a. Yes, we can use bacteria for producing insulin through genetic engineering.
b. We can modify and create new varieties of plants and animals.
Effective vaccines can be produced. We can make genetically modified pharm animals which produce medicines, hormones etc.

Chapter-8
The paths traversed by life.

1. Write the correct order of formation

a. Primitive cell
b. Genetic materials and protein.
c. Ocean.
d. Simple organic molecules.
e. Formation of lipid layer.
f. Complex organic molecules.

Ans. c → d → f → b → e → a

2. "Acquired characters accumulate through generations and lead to the formation of new species"

a) Who put forward this argument ?
b) Why did this argument was not accepted by the scientific world?

Ans: - a) Lamarck
b) Acquired characters are not inheritable

3 .Compare and list the characteristics of Cercopithecoidea and Hominoidea.

Cercopithecoidea	Hominoidea.
Small brain	Developed brain
Long tails	Hands that can move freely.

4. "Rats have the difference of 31 amino acids in the Beta chain of Haemoglobin from man"
What inference you can reach from the above statement ?

Ans: Rat is far away from humans from the evolutionary point of view.

5 Mutation causes variation in organisms . It leads to evolution of species.
a. What are mutations ?
b. Who formulated mutation theory ?
c. Explain two other factors that cause variations in organisms.

Ans. a. A sudden heritable change in the genetic constitution of an organism is called mutations.
b. Hugo deVries
c. Crossing over in chromosomes,
Fertilization (changes occur in the allele combination)

6. Complete the table.

Type of finches	Food	Diversity of the beaks
Insectivorous finch	.....(a).....	Small beak
.....(b).....	Cactus plant	.....(c).....
Wood pecker finch	.....(d).....	.....(e).....
.....(f).....	Seeds	Large beak

Ans.

Type of finches	Food	Diversity of the beaks
Insectivorous finch	Insects	Small beak
Cactus eating finch	Cactus plant	Long sharp beaks
Wood pecker finch	Worms	Sharp beak
Ground finch	Seeds	Large beak

****

SMILE 2024

SSLC-BIOLOGY (ENGLISH)

LEVEL 2

CONTENTS

Chapter-1

SENSATIONS AND RESPONSES

Important facts

- Stimuli : Senses that evoke responses in organisms
- Receptor : specialised cells to receive stimuli.
- Nerve cell (Neuron) : Basic structural unit of Nervous system
- Synapse : Junction between two neurons or a neuron, and a muscle cell or a neuron and a glandular cell.
- Nerve : is a group of axons or nerve fibres. They are covered by connective tissue
- Types of nerves: Sensory nerve, Motor nerve, mixed nerve
- Meninges: Three layered membrane that covers the brain-
- Parts of brain: Cerebrum, cerebellum, Medulla oblongata, Thalamus, Hypothalamus
- Reflex action: The accidental and involuntary responses towards stimuli
- Central nervous system : Brain and spinal cord (Protection of both)
- Spinal cord : Reflex action. Parts of spinal cord : Dorsal root, ventral root, central canal
- Peripheral nervous system: 12 pairs of cranial nerves and 31 pairs of spinal nerves
- Autonomous nervous system (part of peripheral nervous system) : Consist of Sympathetic system and Parasympathetic system
- The diseases affecting the nervous system : Alzheimer's, Parkinson, Epilepsy.

I. Find out the odd one. Write the Common features of others

1. Touch, smell, hunger, cold.

   Ans : Hunger. Others are external stimuli

2. Parkinson, Epilepsy, Haemophilia, Alzheimer's

   Ans : Haemophilia. Others are the diseases diseases affecting the nervous system

II. Identity the word pair relationship and fill suitably.

1. Dendron : Dendrite, Axon: ……

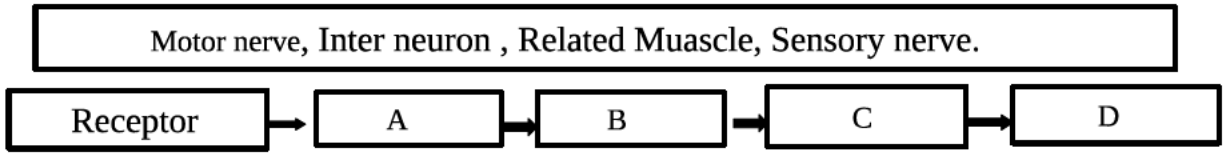
   Ans: Axonite

2. 12 pairs : Cranial Nerves, 31 pairs : ……...

   Ans. Spinal nerves

III. Complete the flow chart by selecting the suitable word from the box.

1)



Ans : A- Sensory nerve, B – Interneuron C- Motor nerve D- Related Muscle

(PTO)

2) The functions of Sympathetic and Parasympathetic systems are given below List them with a suitable title.

a) Pupil in the eye Constricts

b) Production of saliva decreases

c) Urinary bladder regains normal state.

d) Pupil in the eye dilates

e) Production of Saliva increases.

f) Urinary bladder contracts

Ans: Sympathetic system - **b,c,d**

Parasympathetic system **– a,e,f**

3) Re-draw the figure and and label the parts by writing their name

(a)

* Largest part of brain
* centre of thought, intelligence, memory and imagination
* evokes sensations * controls voluntary movements.

(b) coordinates muscular activities and maintains equilibrium of the body.

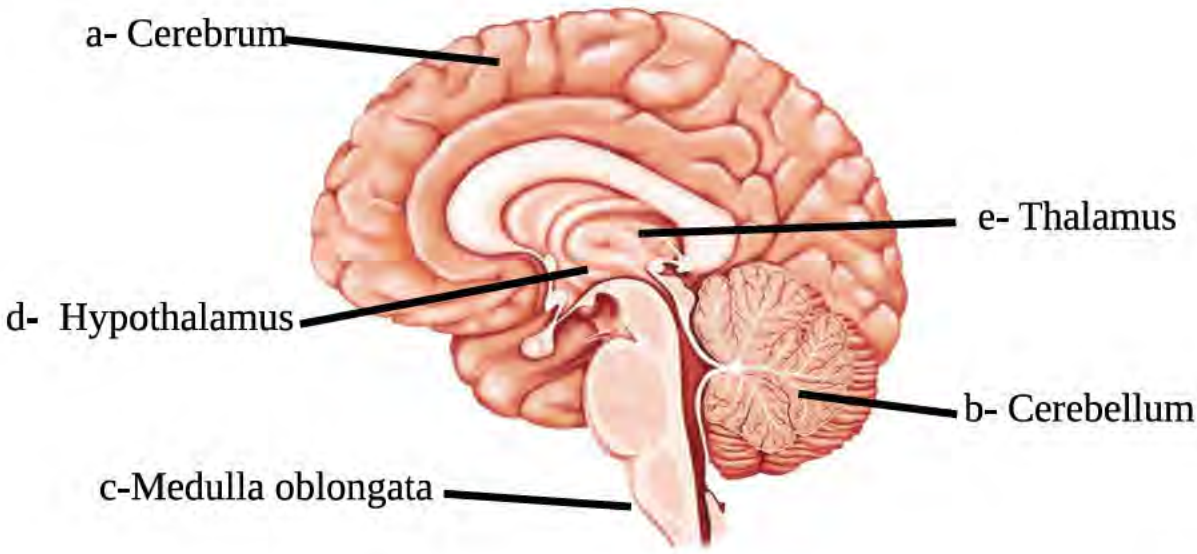
(c) controls involuntary actions like heart beat, breathing etc.

(d)

* plays a major role in the maintenance of homeostasis.
* Part seen just below the thalamus

(e) relay station of impulses to and from the cerebrum.

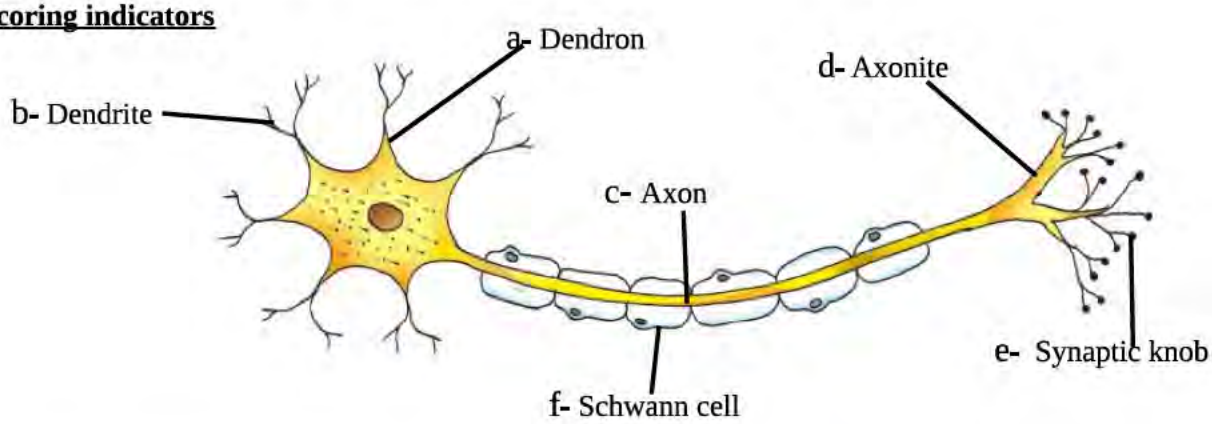
Ans :-



4) Redraw the figure and label the following parts, by writing their names

a) Short filament from the cell body.
b) Part that receives impulses from adjacent neuron.
c) Part which carries impulses from the cell body to outside.
d) Carries impulses to the synaptic knob. **or** Branches of axon.
e) Part which secretes neurotransmitter. **or** Tip of axonite.
f) Cell which encircles the axon.

Scoring indicators



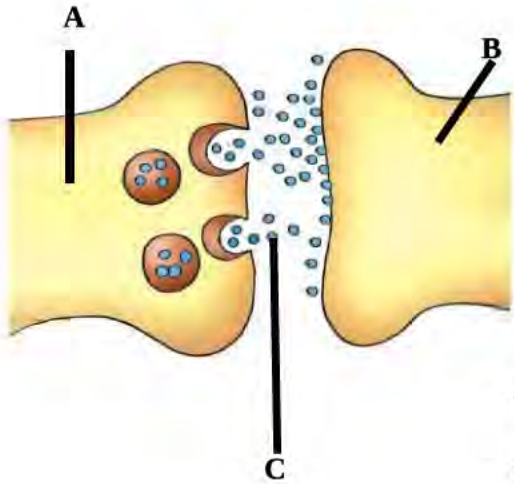
5) Analyse the figure and answer the following questions.

a) Part which carry Sensory impulses to spinal cord.
b) Part which carry Motor impulses from spinal cord.
c) Part filled with CSF.

Ans :-

a) Dorsal root (b) Ventral root (c) Central canal

6



a) Identify this figure
b) Write the name of the part Labelled as A and B
c) Write an example for Neurotransmitter labelled as **C**

Scoring indicators

a) Synapse **(b) A -**synaptic knob **B-** Dendrite

c) Acetylcholine or dopamine

(PTO)

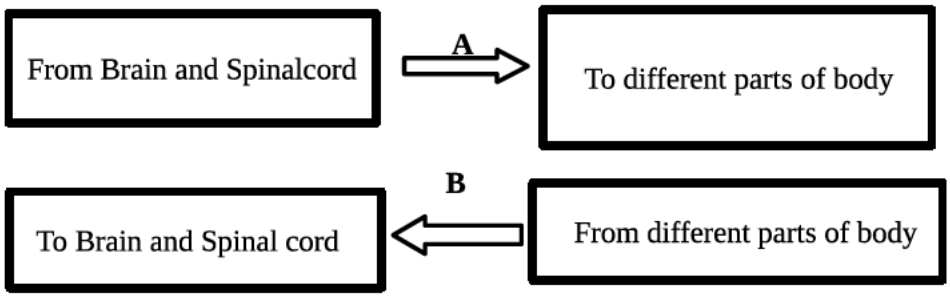
7) Complete the following table, related to neural disorders

Disease	Reason	Symptoms
Alzheimer's	**A**	**B**
C	* Destruction of specialised ganglions in the brain. * Production of dopamine gets reduced.	**D**
E	Continuous and irregular flow of electric charges in the brain.	**F**

Scoring Indicators :-

Disease	Reason	Symptoms
Alzheimer's	Due to the accumulation of an insoluble protein brain and Neurons get destroyed.	Loss of memory
Parkinsons	* Destruction of specialised ganglions in the brain. * Production of dopamine gets reduced.	* irregular movement of muscles * shivering of the body
Epilepsy	Continuous and irregular flow of electric charges in the brain.	*frothy discharge from the mouth * clenching of the teeth * patient falls unconscious.

8)



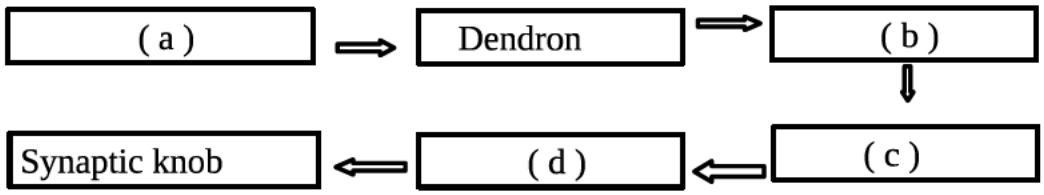
(a) Identify the nerves **A** and **B**

Scoring Indicators :-

A - Motor nerve **B-** Sensory nerve

(PTO)

9) Complete the flowchart showing transmission of impulses in a Neuron.



Ans :- (a) Dendrite (b) Cell body (c) Axon (d) Axonite

Chapter-2

WINDOWS OF KNOWLEDGE

Important facts:

- Sense organs : Eye, ear, nose, tongue, skin
- Power of accommodation : The ability of the eye to adjust the focal length of the lens to form the image on the retina.
- Photoreceptors : Rod cells, Cone cells
- The chemistry of vision: In the presence of light the pigments (Rhodopsin, photopsin) present in Photoreceptors, dissociate
- Binocular vision: Two images falls in the retina of two eyes combined as a result of the activities of the brain and we get a three dimensional image of the object
- Eye defects : Night Blindness, Xerophthalmia, colour blindness. glaucoma, cataract, Conjunctivitis.
- Protection of Eye (Eye lashes, Eye brow, Eye lids, Lysozyme)
- Eye donation: Poster preparation
- Structure of ear
- External ear: Pinna, auditory canal, Tympanum
- Middle ear: Malleus, Incus, stapes (ear ossicles), Eustachian tube
- Internal ear: Cochlea, vestibule, Semicircular canal , Vestibular nerve, auditory nerve
- Eustachian tube: Help in Balancing the pressure on either side of the tympanum.
- Ear: Hearing - Organ of corti, Body balancing – Semicircular canal and vestibule
- Taste : Papilla, Taste buds, Chemo receptors
- Smell : Olfactory receptors
- Skin : Touch, pressure, temperature, pain, cold (receptors)

I. **Find out the correct pair and write the answer**

1. Vision : Optic nerve; Hearing: …….
   Ans: Auditory nerve
2. Rod cell: Rhodopsin; Cone cell: ……..
   Ans Photopsin or iodopsin
3. Brain: CSF; Eye: ……. Ans: Aqueous humor

(PTO)

II. **Find out the odd one Justify your answer**

1. Iris, Cochlea, Retina, Pupil

   Ans: Cochlea. Others are the parts of eye

2. Malleus, Eustachian tube, Incus, Stapes

3. Ans: Eustachian tube. Others are the bones in ear ossicles.

III. Re arrange column band C with A

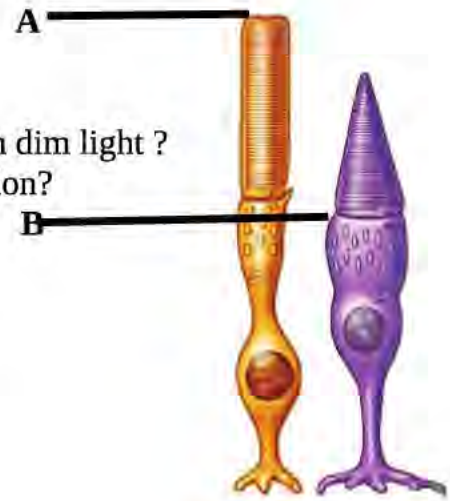
Eye defects	Reason	Remedy
Xerophthalmia	Lens become opaque	Laser surgery
Glaucoma	Prolonged deficiency of Vitamin A	Replacing the lens with an artificial one, through Surgery.
Cataract	Reabsorption of aqueous humor does not occur so increased pressure in aqueous chamber	Take Vitamin A enriched food

Ans : -

Eye defects	Reason	Remedy
Xerophthalmia	Prolonged deficiency of Vitamin A	Take Vitamin A enriched food
Glaucoma	Reabsorption of aqueous humor does not occur so increased pressure in aqueous chamber	Laser surgery.
Cataract	Lens become opaque	Replacing the lens with an artificial one, through surgery.

IV.

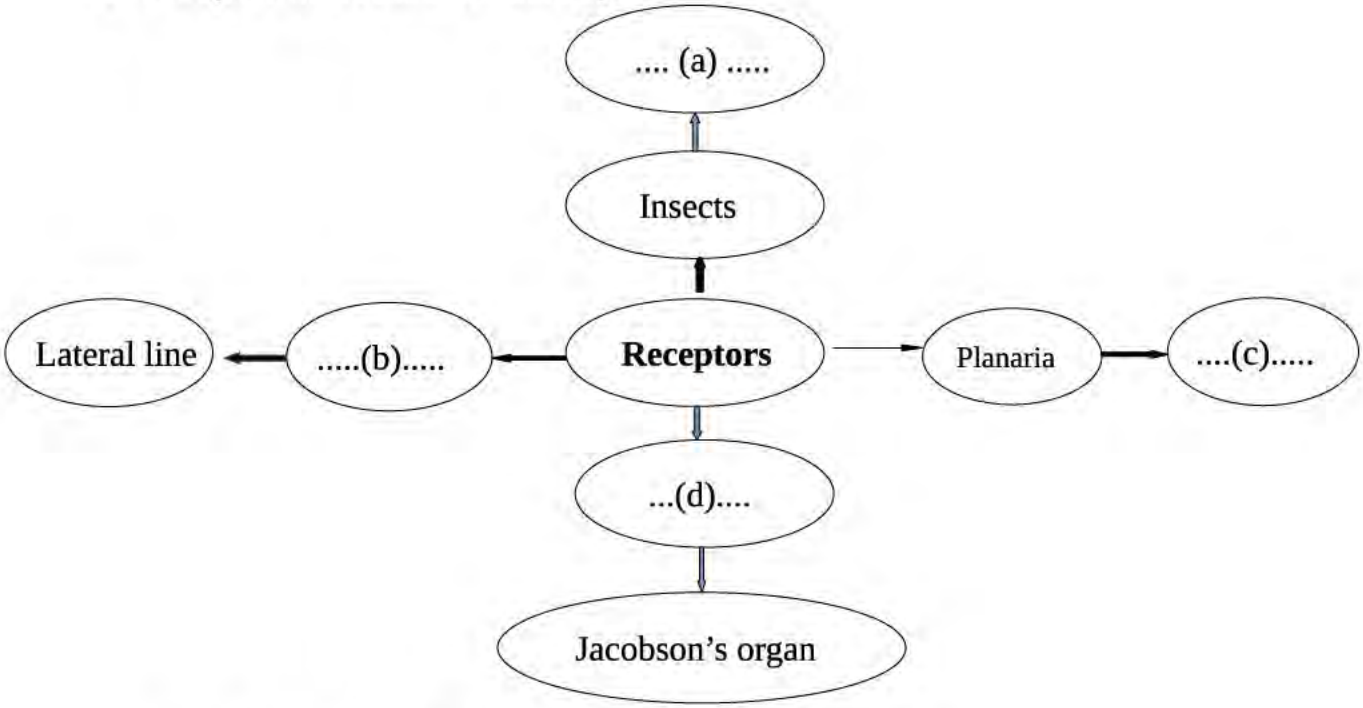
a) Identify A , B
b) Name the pigments present in A and B
c) Which cell among these helps to see objects in dim light ?
d) Which cell among these helps in coloured vision?



4. Ans :-
   a) A- Rod Cell B- Cone cell
   b) A - Rhodopsin B- Photopsin or Iodopsin
   c) Rod cell (d) Cone cell

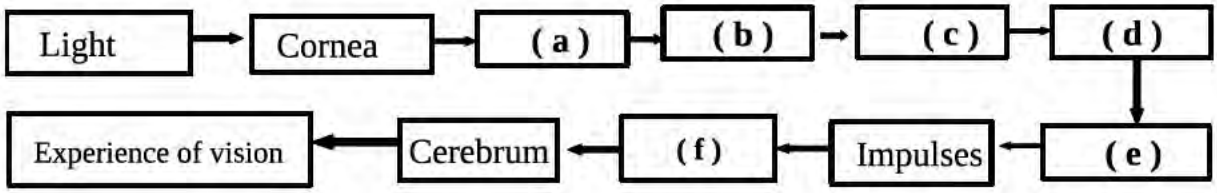
(PTO)

V. Complete the illustration suitably.



Ans_ (a) Ommatidia (b) Shark (c) Eye spot (d) Snake

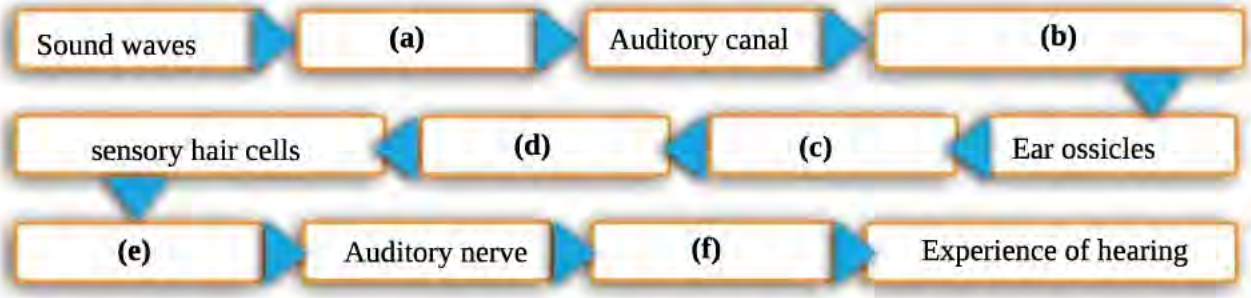
VI. Complete the flow chart related to vision



Ans:-

(a) Aqueous humor (b) Pupil (c) Lens (d) Vitreous humor (e) Retina
(f) Optic nerve

VII. Complete the flow chart related to Hearing



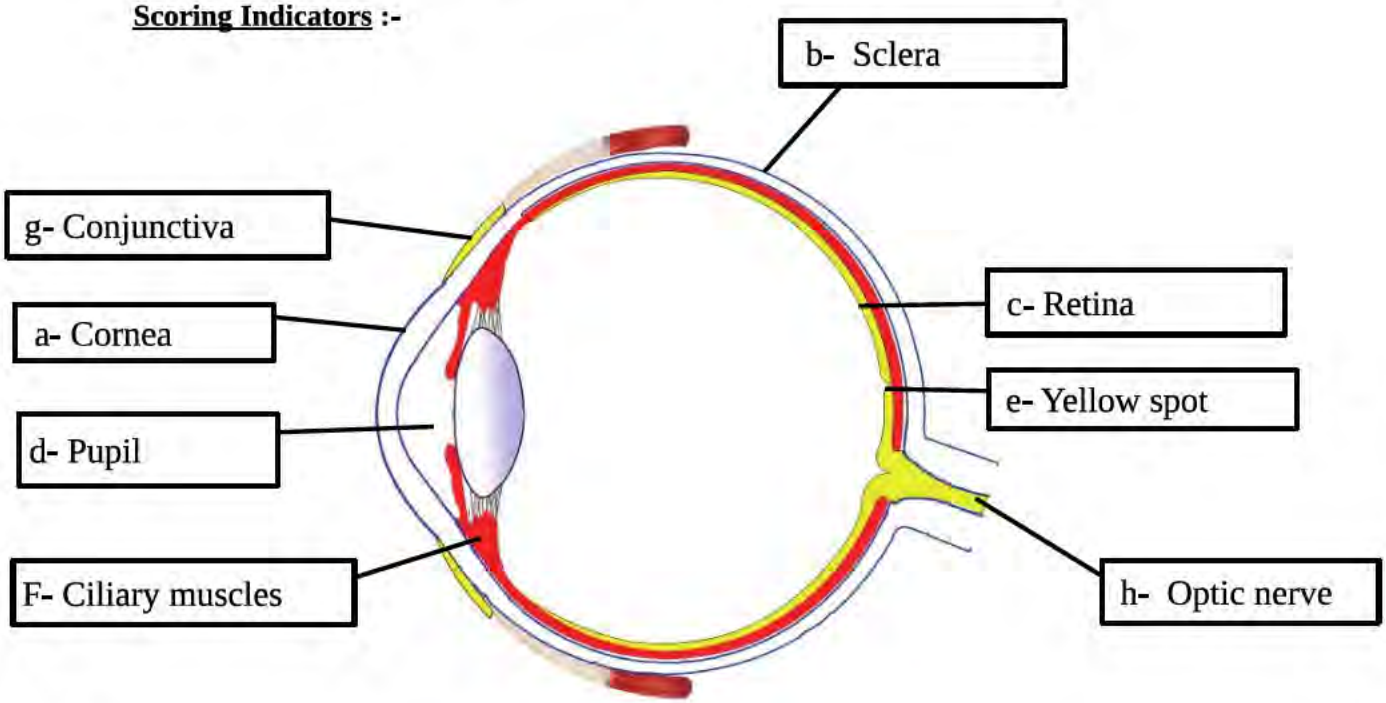
Ans :_ (a) Pinna (b) Tympanum (c) Oval window (d) Cochlea (e) Impulses (f) Cerebrum

VIII.

1) Redraw the figure of Eye and label the following parts by writing their name

a) The projected transparent anterior part of the Sclera
b) The white outer layer which gives firmness to the eye
c) The inner layer which has photo receptors.
d) * The aperture seen at the centre of the iris.
* Aperture which automatically regulate its size according to the intensity of light
e) The part of the retina where plenty of photo receptors are present.
f) Muscles which alter the curvature of lens. **or** Circular muscles seen around the lens
g) The layer which covers and protects the front part of Sclera except the cornea.
h) Transmits impulses from photo receptors to the visual centre in the brain.

Scoring Indicators :-



IX.

a) Identify X and Y and write their name
b) Write the functions of X and Y

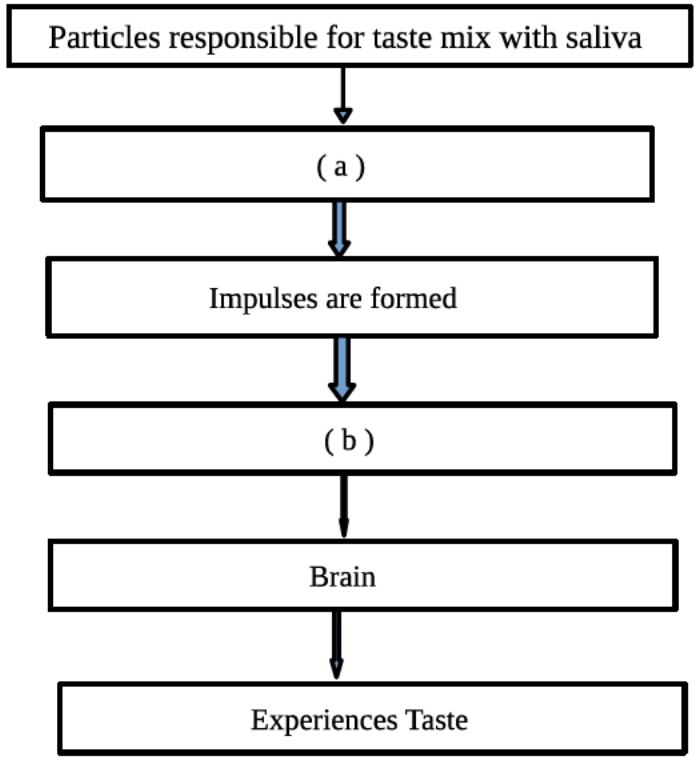
Ans:-

a) X – Semi circular canals
Y - Cochlea

b) X- Help in body balance.
Y - Helps in hearing

(PTO)

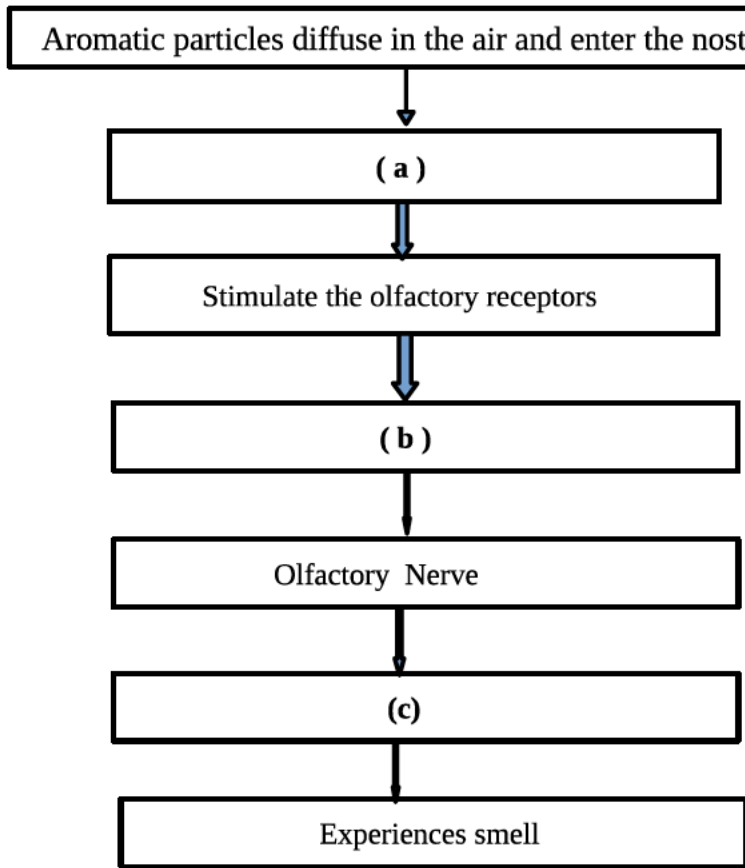
X . Complete the flow chart related to taste



Scoring Indicators :-

(a) chemoreceptors are activated (b) respective nerve

XI. Complete the flow chart related to Smell



Scoring Indicators :- (a) Aromatic particles dissolve in the mucus inside the nostrils.

(b) Impulses are formed (c) Brain

(PTO)

Chapter-3
CHEMICAL MESSAGES FOR HOMEOSTASIS

Important facts

- Hormones and target cells
- Pancreas - Insulin, Glucagon (Hormones)
- Normal level of glucose in blood : 70-110 mg/100ml
- Thyroid gland - Thyroxin, calcitonin
- Goitre - Deficiency of iodine in food
- Parathyroid gland - Parathormone
- Normal level of calcium in blood: 9-11 mg/100ml
- Adrenal gland (cortex) - cortisol, Aldosterone, sex hormones
- Adrenal gland (medulla) - Epinephrine (Emergency hormone), Nor epinephrine
- Pineal gland - Biological clock, Melatonin Hormone
- Thymus gland : Thymosins (Youth hormone)
- Pituitary gland - Growth hormone (Somatotropin)
- Conditions related to growth hormone - Gigantism, Dwarfism, Acromegaly
- Tropic hormone: TSH, ACTH, GTH, Somatotropin, Prolactin
- Facilitates child birth – Oxytocin (Produced by Hypothalamus and stores in pituitary gland)
- Reabsorption of water in kidneys - ADH (vasopressin)
- Sex hormone - Testosterone, Estrogen, progesterone
- Hypothalamus - Releasing hormone, inhibitory hormone Oxytocin, ADH (vasopressin)
- Pheromones – Functions, Examples for Pheromones (Civeton, Muscone, bombykol)
- Plant hormones - Auxin, cytokinin, Gibberellin, Abscisic acid, Ethylene
- Artificial plant hormones

* Ethyphone : Liquid form of ethylene (Artificial hormone used to increase latex in rubber)

I. Identify the word pair relationship and fill suitably.

1. Growth hormone : somatotropin ; youth hormone: ……..

   Ans. Thymosin

2. Musk deer: Muscone. Civet cat: ……

   Ans: Civetone

3. Deficiency be of Thyroxin in children: Cretinism;

   Deficiency to Thyroxin in adult: …….

   Ans: Myxoedema

4. Deficiency of Thyroxin in children : Cretinism;

   Deficiency of Somatotropin in children: ……..

   Ans Dwarfism.

(PTO)

II. Find out the odd one. Justify your answer.

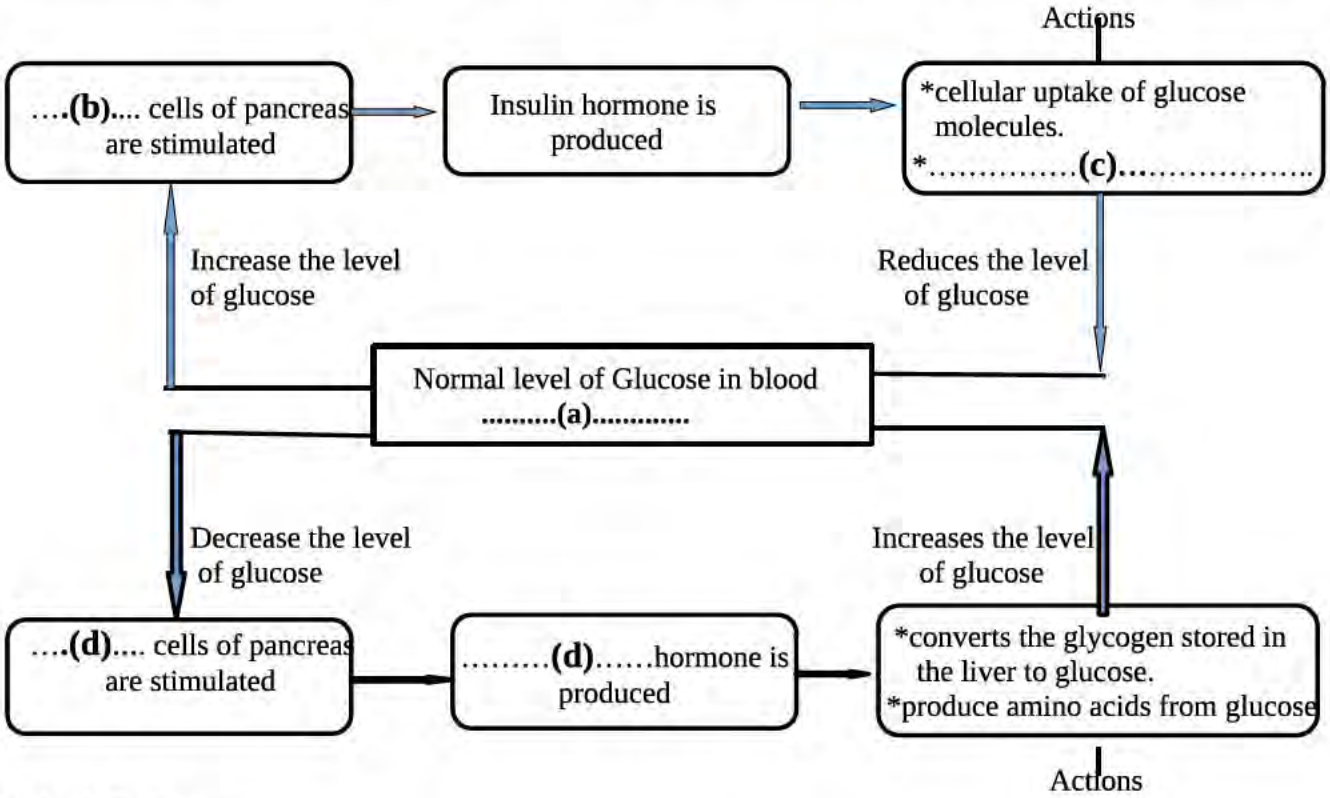
1. Auxin, Bombykol, Ethylene, Gibberellin

   Ans: Bombykol, others are plant hormones.

2. Oxytocin, Thyroxin, Vasopressin, Inhibitory hormone

   Ans: Thyroxin. Others are produced by hypothalamus

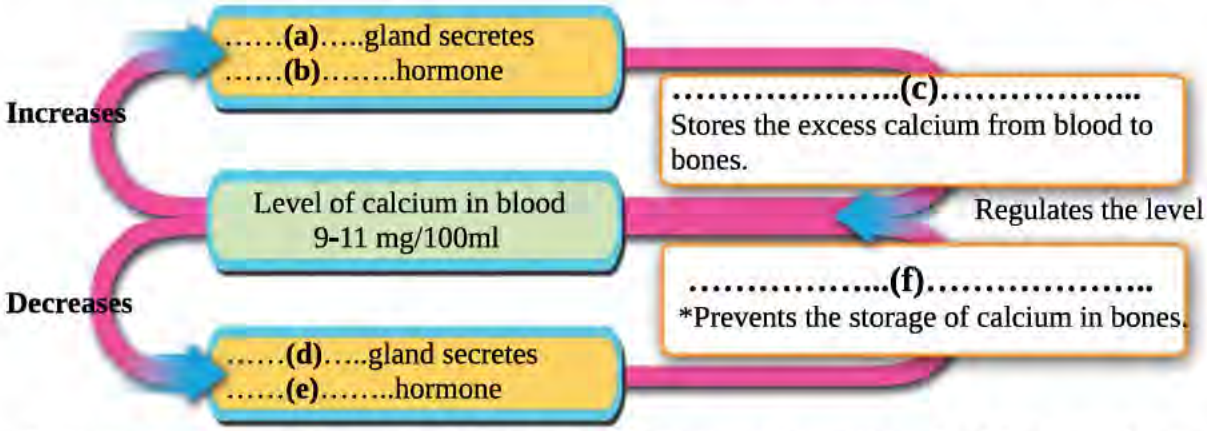
III. Complete the illustration related to the method of regulation of blood glucose level



Scoring Indicators :-

(a) 70-110Mg /100ml **(b)** Beta **(c)** converts glucose into glycogen in the liver and muscles.
(d) Glucagon

IV. Complete the following table related to Regulation of level of calcium in blood .



Scoring Indicators :- **(a)** Thyroid **(b) Calcitonin (c) Prevents the mixing of calcium from bones to blood.**
(d) Parathyroid **(e)** parathormone **(f)** Reabsorbs calcium from kidneys to blood.

(PTO)

V. Pair Column A with Column B suitably

Plant Hormone	Functions
Auxin	Cell differentiation.
Gibberellin	Ripening of fruits
Cytokinin	Fruit formation
Ethylene	Sprouting of leaves

Ans:-

Plant Hormone	Functions
Auxin	Fruit formation
Gibberellin	Sprouting of leaves
Cytokinin	Cell differentiation
Ethylene	Ripening of fruits

VI. Re-arrange column B and C with A

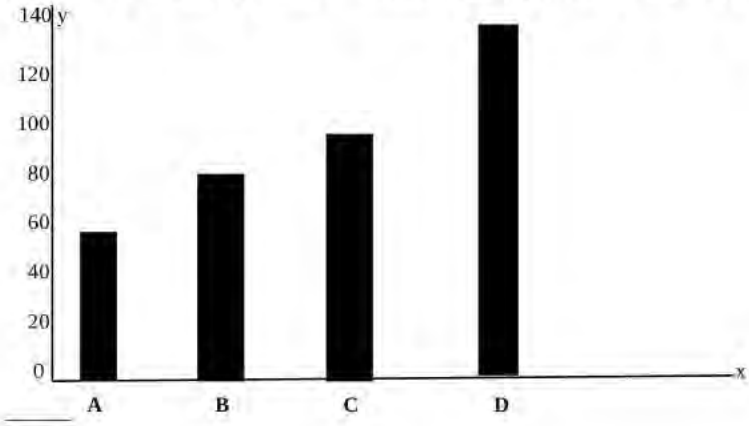
A	B	C
Condition	**Reason**	**Symptoms**
Gigantism.	Production of Somatotropin decreases during the growth phase	Growth of the bones on the face, jaws and fingers.
Acromegaly	Somatotropin increases during the growth phase	Stunted growth
Dwarfism	Excessive production of Somatotropin after the growth phase	Excessive growth of the body

Ans:-

Condition	Reason	Symptoms
Gigantism.	Production of Somatotropin increases during the growth phase	Excessive growth of the body
Acromegaly	Production Somatotropin increases after the growth phase	Growth of the bones on the face, jaws and fingers.
Dwarfism	Production of Somatotropin decreases during the growth phase	Stunted growth

(PTO)

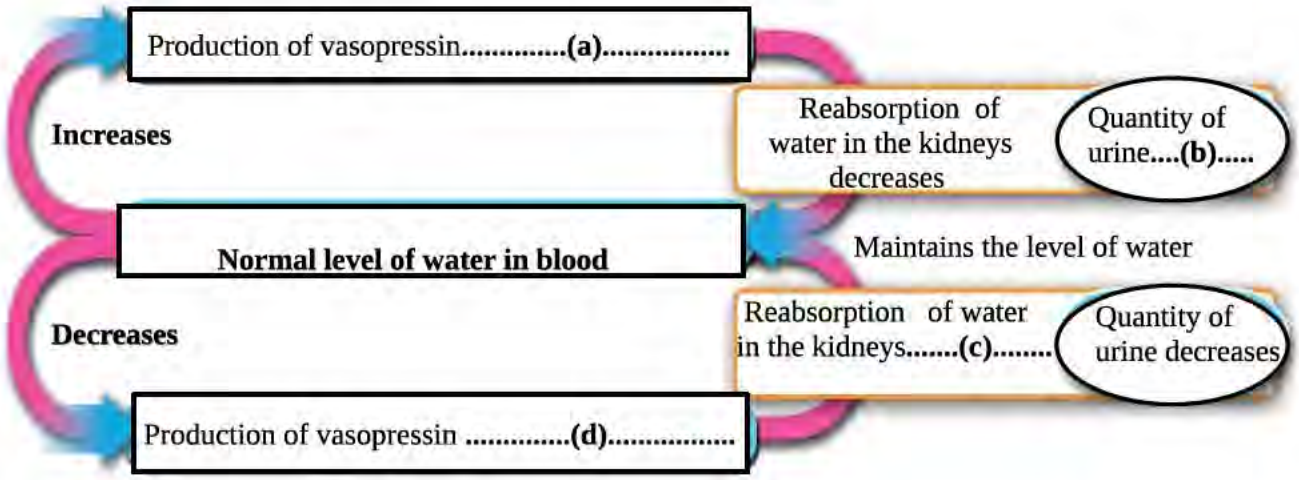
VII **Analyse the graph and answer the questions that fololw.**
(X axis – Persons , Y axis – amount of glucose in 100 ml of blood in different persons)



(a) Persons with normal level of glucose in blood
(b) Person with glucose level below the normal
(c) write the condition of person D
(d) Symptoms of Person D

Ans :- **(a)** B and C **(b)** A **(c)** Diabetes **(d)** Increased appetite and thirst , frequent urination.

VIII. **Analyse the illustration related to maintenance of the level of water in blood and fill in the blanks suitably.**



Ans :- (a) Decreases (b) Increases (c) Increases (d) Increases

(PTO)

Chapter-4

KEEPING DISEASES AWAY

Important facts:

- Disease causing microorganisms : Bacteria, Fungus, Virus, Protozoa
- Modes of transmission of diseases
- Rat fever : Pathogen - Leptospira, Symptoms.
- Diphtheria : Pathogen - Corynebacterium diphtheriae, Symptoms
- Tuberculosis : Pathogen - Mycobacterium tuberculosis, Symptoms.
- Viral diseases : Nipah, AIDS, Hepatitis.
- Fungal diseases : Ringworm, Athlete's' foot
- Protozoa : Malaria, Pathogen: Plasmodium, Vector: Female Anopheles mosquito.
- Filarial worm : Filariasis, spread by Culex mosquito
- Genetic diseases : Haemophilia, Sickle cell anaemia.
- Cancer : Uncontrolled cell division. Causes and treatment.
- Life style diseases : Diabetes, Fatty Liver, Stroke, Hypertension, Heart attack.
- Smoking : Health hazards
- Animal diseases: Anthrax, Inflammation of udder (Bacteria)
  Foot and mouth disease (Virus)
- Plant diseases: Blight disease in paddy, Wilt disease in Brinjal (Bacteria)
  Mosaic disease pea and tapioca, Bunchy top of banana (virus)
  Quick wilt in pepper, Bud rot of coconut (Fungus)

I. Find out the word pair relationship and fill in the blanks.

1. Filariasis: Culex mosquitoes; Malaria: ……

   Ans: Female Anopheles mosquito

2. Rat fever: Leptospira; Tuberculosis: ……..

   Ans: Mycobacterium tuberculosis.

II. Find out the odd one and write the common features of others

1. Diabetes, Typhoid, Stroke, Fatty liver.

   Ans: Typhoid. Others are lifestyle diseases.

2. Anthrax, Inflammation of udder, Foot and mouth disease, Blight disease

   Ans: Blight disease. Others are animal disease.

3. Nipah, AIDS, Diphtheria, Hepatitis.

   Ans: Diphtheria. Others are viral diseases.

(PTO)

III. Complete the following table suitably

1) Changes occur in the structure of haemoglobin and red blood cells.
2) Excessive bleeding from minor wounds
3) Temporary relief is brought in by Identifying and injecting the deficient protein
4) The sickle shaped RBCs get collected in the blood vessels and block the flow of blood

Haemophilia	Sickle cell anaemia
.....**(a)**.....	.....**(c)**.....
.....**(b)**.....	.....**(d)**.....

Ans:- (a) – 2 (b) – 3 (c)- 1 (d) – 4

IV. Choose appropriate disease and plants from the box and fill suitably.

Banana, Blight, Pepper, Paddy, Bunchy top, Quick wilt

Causative Organism	**Disease**	**Plant**
Bacteria	.....**(a)**.....	.....**(b)**.....
Virus	.....**(c)**.....	.....**(d)**.....
Fungus	.....**(e)**.....	.....**(f)**.....

Ans:- (a) Blight (b) Paddy (c) Bunchy top (d) Banana (e) Quick wilt (f) Pepper.

V. Correct the following statements

a) AIDS spreads through touch, shaking hands, coughing, sneezing
b) AIDS doesn't spread through the reception of blood and organs contaminated with HIV
c) AIDS spreads through insects like mosquitoes, houseflies
d) AIDS spreads by staying together and sharing food.

Ans: - (a) Doesn't spread (b) Spreads (c) Doesn't spread (d) Doesn't Spread

(PTO)

VI. Match A and B suitably as per the model given.

Model : Deposition of excess fat in the liver : Fatty liver

A

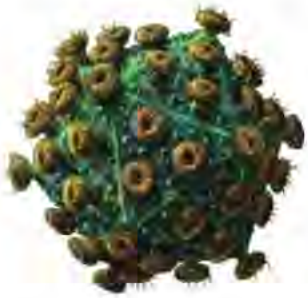
a) Deficiency of insulin or its malfunctioning.
b) Deposition of excess fat in the liver.
c) Rupture of blood vessels in the brain, block of blood flow.
d) Decrease in the diameter of arteries due to deposition of fat.
e) Block of blood flow due to deposition of fat in coronary arteries which carry blood to the heart.

B

1) Fatty liver
2) Stroke
3) Heart attack
4) Diabetes
5) Hyper tension

Ans : - (a) – 4 (c) – 2 (d) – 5 (e) - 3

VII.

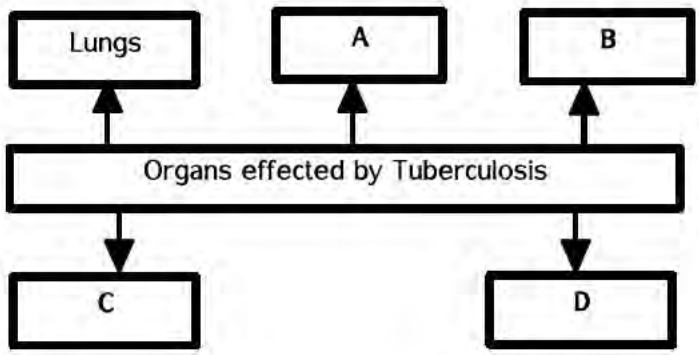


a) Identify this pathogen
b) How does this pathogen responsible for reducing Immunity ?

Ans:- (a) – HIV

(b) HIV multiplies using the genetic mechanism of lymphocytes which play a major role in providing immunity to the body.

VIII. Complete table related to the organs, which are effected by Tuberculosis



Ans : - A. Kidneys, B. Bones, C. Joints, D. Brain

Chapter-5

SOLDIERS OF DEFENSE

Important facts:

- Defense: The ability of the body to prevent the entry of pathogens and to destroy those already entered the body
- Defence mechanisms : Body coverings and secretions, body fluids.
- Defense in Skin : Epidermis, Sebaceous gland, Sweat gland.
- Kenatin : A protein present in epidermis which prevents the entry of germs..
- White blood cells : Neutrophil, Basophil, Eosinophil, Monocyte, Lymphocyte.
- Inflammatory Response : The process in which a body part swells when a wound occurs.
- Phagocytosis : Process of engulfing and destroying of germs.
- Phagocytes : The white blood cells involved in phagocytosis - Neutrophil, Monocyte
- Fever : Condition when the body temperature rises above the normal level (37°C or 98.6°F)
- Mode of defense : Non-specific defense, Specific defense.
- Non-specific defense : Inflammatory response, phagocytosis, Fever, Blood clotting, wound healing.
- Specific defense - Lymphocytes (B-Lymphocytes, T-lympho cytes) Specifically identify and destroy pathogen
- Lymph - Lymph is formed from blood and reabsorbed into blood. Lymph contains plenty of lymphocytes.
- Immunization : Artificial method to make the defense cells alert against the pathogen.
- Vaccines - Substances used for artificial immunization.
- Antibiotic - Medicines used to destroy bacteria.
- Blood transfusion - Transfer of blood from one person to another.
- Defense mechanisms in plants: wax coating, cuticle, Bark, cell wall, callose.

I Find out the word pain relationship and fill in the blanks.

1 B.C.G : Tuberculosis; O.P.V.: ……..

Ans: Polio

2 E.C.G.: Heart; E.E.G. : ……

Ans: Brain.

3 Cardiology: Treatment of heart; Oncology: …….

Ans: Cancer treatment.

II Find out the odd one and write its reason.

1 Neutrophil, Lysozyme, Basophil, Eosinophil.

Ans: Lysozyme. Enzyme seen in body fluids. Others are white blood cells. **(PTO)**

2 Blood Clothing, Lymphocyte, wound healing, Fever.

Ans: Lymphocyte - Part of specific defense, others are part of non-specific defense.

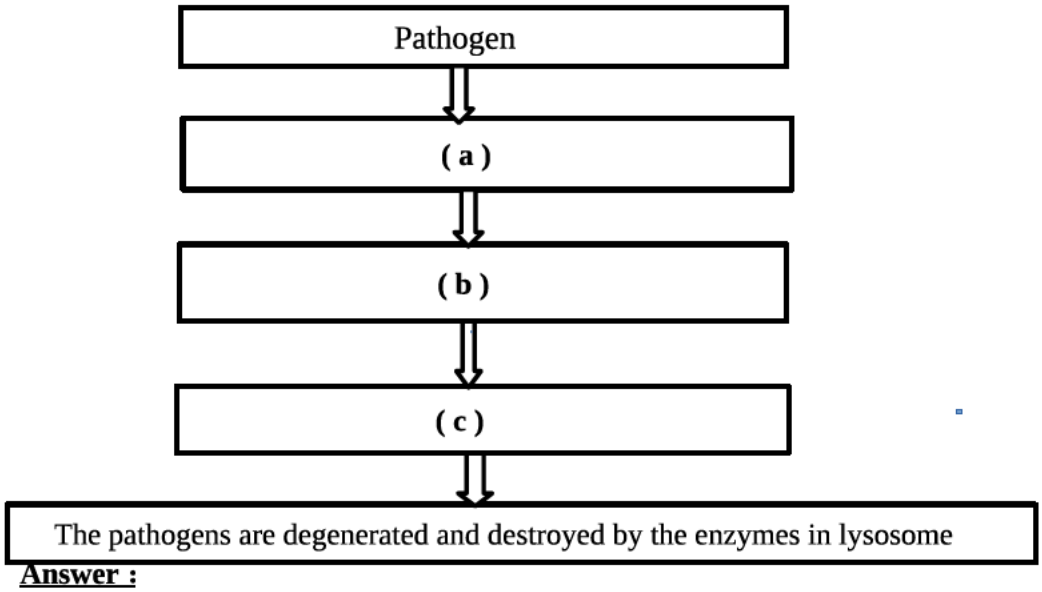
III. **Fill the following table suitably by choosing correct statements given below**.

1) Mature in the thymus gland.
2) Destroy the bacteria by disintegrating their cell membrane.
3) Destroy the cells affected by virus.
4) Destroy cancer cells. .
5) Neutralise the toxin of the antigens.
6) mature in the bone marrow

B- Lymphocytes	T - Lymphocytes
.....	.....
.....	.....
.....	.....

Ans :- B- Lymphocytes – **2 , 5, 6,** T – Lymphocytes – **1, 3, 4**

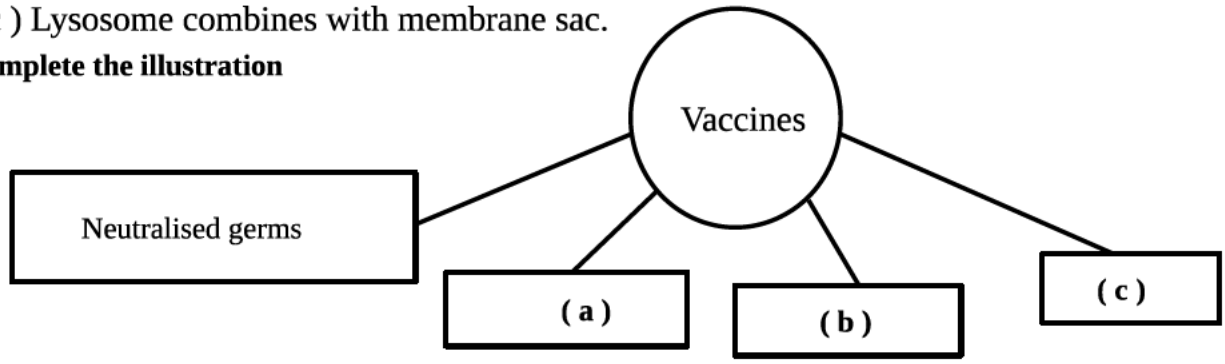
IV. Complete the flow chart related to Phagocytosis



Answer :

(a) Engulfs pathogen in the membrane sac.
(b) Lysosome
(c) Lysosome combines with membrane sac.

V. **Complete the illustration**

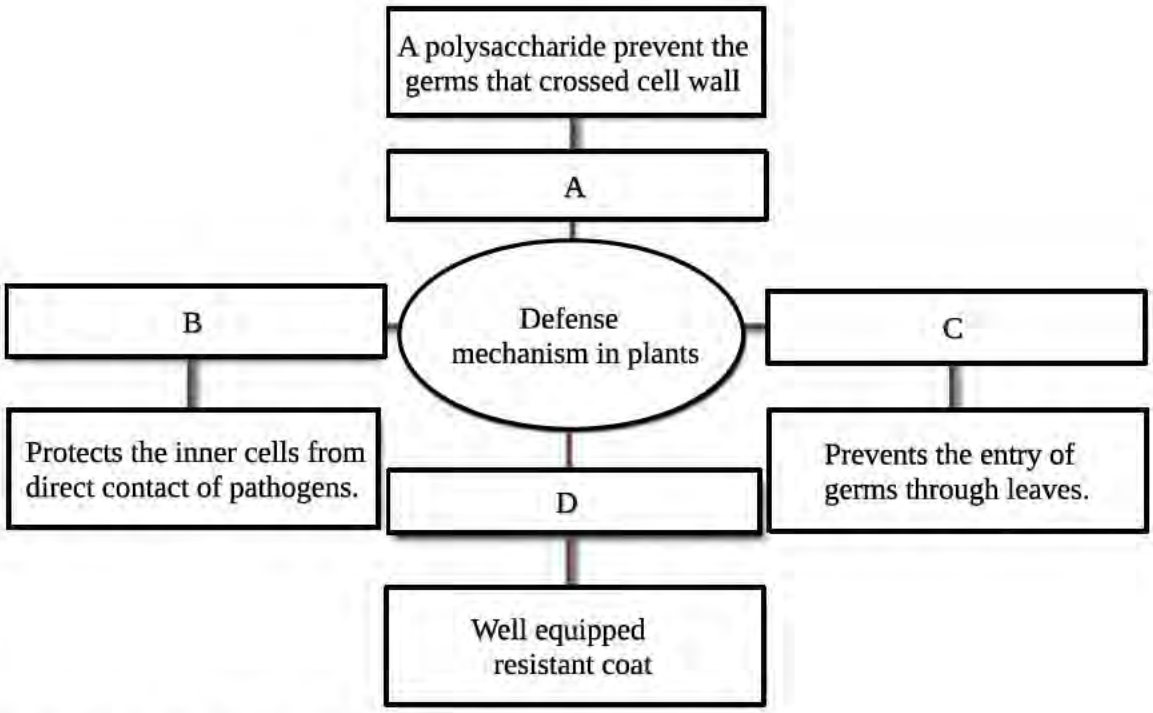


(PTO)

Answer :

(a) Alive germs (b) Neutralised toxins (c) Cellular parts of pathogens.

VI. Complete the following illustration by including different defense mechanisms in plants .



Ans :- A - Callose, B - Bark , C - Cuticle , D - Cell wall

VII. " Blood donation, Life donation" What are the things should be taken care of while transfusing blood? ?

Ans :-

* Should be People in the age group 18-60 .
* Blood donation can be done once in three months.
* Pregnant women and breast feeding mothers should not donate blood.
* Persons with communicable diseases should not donate blood.

VIII. **Complete the following table related to Blood grouping**

Blood groups	Antigens	Antibodies
(1)	A	**(2)**
AB	**(3)**	**(4)**
B	**(5)**	a
O	**(6)**	a and b

Ans:-

(1) A (2) b (3) A and B (4) Nil (5) B (6) Nil

(PTO)

IX. ‘Penicillin is the first Antibiotic’

(a) Who discovered penicillin ?
(b) What are Antibiotics ?
(c) What are the side effects created by their regular use ?

Ans :-

(a) Alexander Fleming
(b) Medicines that are extracted from microorganisms like bacteria, fungi, etc. and used to destroy bacteria
(c) * regular use develops immunity in pathogens against antibiotics.
* destroys useful bacteria in the body.
* reduces the quantity of some vitamins in the body.

X. "Blood is a fluid which can’t produce artificially"

Make a poster showing the importance of Blood donation

Chapter-6
UNRAVELLING GENETIC MYSTERIES

Important facts:

- Heredity - Transmission of features of parents to offspring.
- Variations - The features seen in offspring that are different from their parents.
- Genetics - Branch of science that deals with heredity and variation
- Dominant trait : The trait that is expressed in first generation during hybridization.
- Recessive trait : The trait remains hidden in first generation
- Father of Genetics: Gregor Johann Mendel
- Double helical model of DNA : James Watson and Fransis Crick.
- Basic Unit of DNA : Nucleotide
- Components of DNA - Phosphate, Nitrogen base, Sugar molecule.
- Nitrogen bases in DNA – Adenine, Thymine, Cytosine and Guanine.
- Nitrogen bases in RNA - Adenine, Uracil, Cytosine and Guanine
- Gene- particular segments of DNA which contain information for protein synthesis.
- Alleles : Different forms of a gene
- Different types of RNA : mRNA, tRNA, rRNA.
- Human chromosome number - 46 (23 pairs)
- Somatic chromosomes - 44, Sex chromosomes - 2
- Genetic makeup: Male- 44+ XY, Female- 44+XX
- Crossing over in chromosomes : The process in which chromosomes pairs and exchange their parts.

(PTO)

- Mutations : Sudden heritable changes in genetic constitution of an organism.
- Chance for a new born to become male and female - Equal (50%)
- Melanin - Pigment protein imports colour to the skin.
-

I Find out the wond pair relationship and fill in the blanks.

1 DNA: Thymine; RNA: ……

Ans: Uracil

2 Male – 44 + XY, Female: ……

Ans: 44 + XX

3 DNA: De-oxy ribose sugar; RNA: ……..

Ans: Ribose Sugar

II Find out the odd one and write the common features of others.

1 Phosphate, Gene, Sugar molecule, Nitrogen base.

Ans: Gene. Others are parts of nucleotides

III Correct mistakes if any, in the underlined part.

1 During hybridisation, the trait expressed in first generation is called **recessive trait.**

Ans: Dominant trait

2 In hybridization Considering single pair of contrasting traits, the ratio of dominant and recessive traits in second generation is **9:3:3:1**

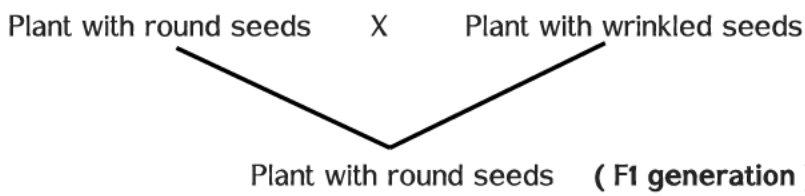
Ans: 3:1

3 A sudden heritable change in the genetic constitution of an organism is called **variation**

Ans: Mutation

IV. Observe the hybridization experiment given below and answer the questions that follow.

Parental palnts



a) Illustrate the above hybridization experiments with symbols ?

b) Make an illustration showing the second generation obtained by self pollination of F1 generation?

c) Write the ratio of plants obtained in the second generation?

(PTO)

Ans :-

a)

Parental palnts

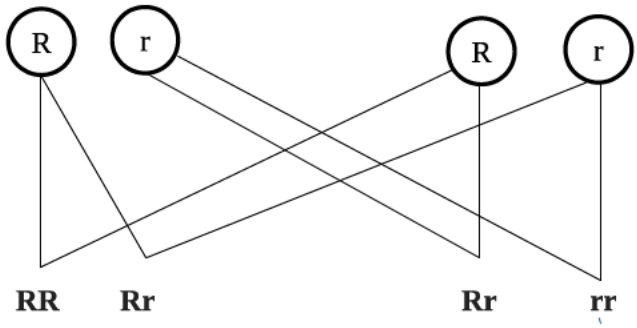
RR X rr

(F1 generation) Rr

b)

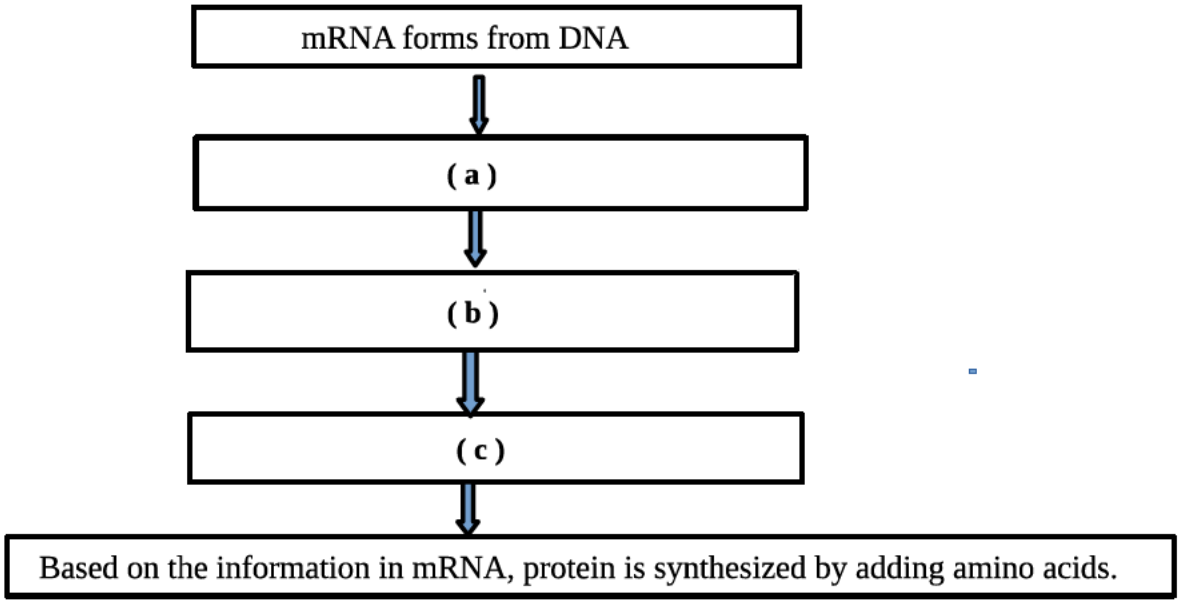
Rr X Rr

Gametes



c) 3 Round seeded plants and one wrinkled seeded plant , Ratio – 3:1

V. Complete the flow chart related to Action of genes (Protein Synthesis)

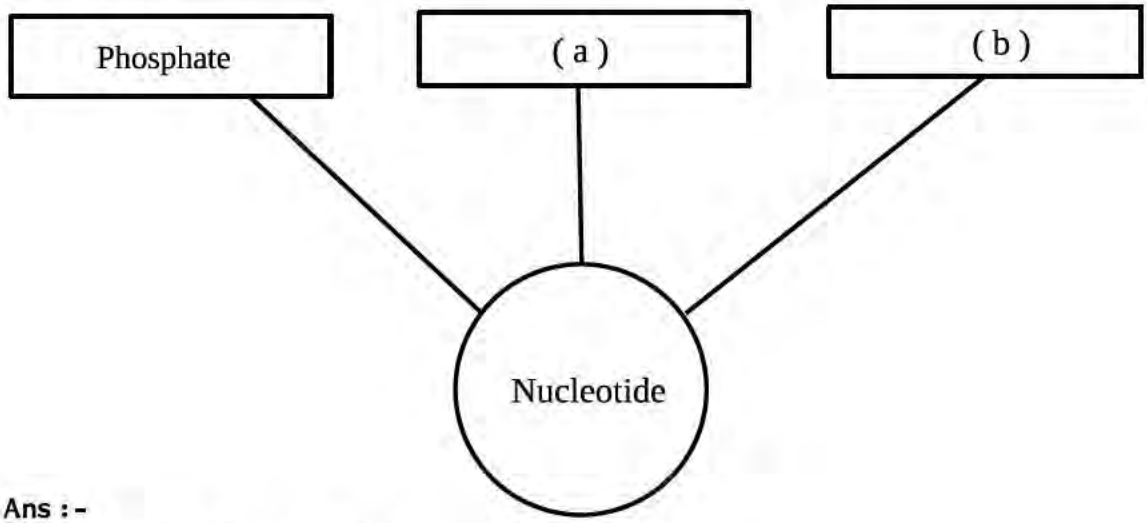


Scoring Indicators :

(a) mRNA reaches outside the nucleus. **(b)** mRNA reaches ribosome
(c) tRNA brings different kinds of amino acids to ribosome.

(PTO)

VI. Complete the illustration



Ans : -

(a) Sugar molecule **(b)** Nitrogen base

VII.

a) Identify this process.

b) What is the importance of this process ?

Ans :- a) Crossing over of chromosomes

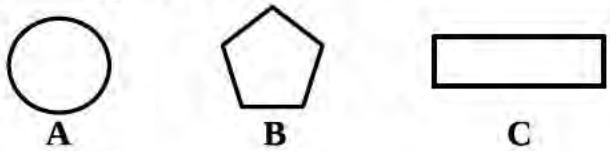
b) causes the expression of new characters in Offsprings (Variations)

VIII.

a) Make the basic unit of D.N.A by using the following structures .

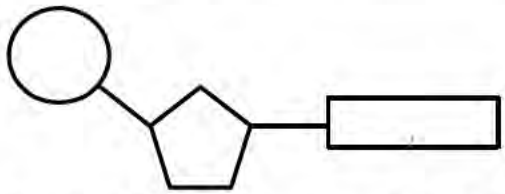
b) What is the name given to this unit ?

c) Identify A, B, C



Ans:-

a)



(b) Nucleotide (c) A -Phosphate B- Pentose sugar C -Nitrogen base

(PTO)

IX. Complete the table

	Number of strands	Type of sugar	Nitrogen bases
DNA	Two	De -oxy ribose sugar	**(a)**
RNA	**(b)**	**(c)**	Adenine uracil Cytosine Guanine

Ans:- :-

(a) Adenine, Thymine, Cytosine, Guanine
(b) One (c) Ribose sugar.

X. Using the informations given in the box

Ribosome , DNA, Nucleus , RNA

Cell ....(a).... Chromosome ....(b).... Gene

Ans:- (a) Nucleus (b) DNA

Chapter-7

GENETICS OF THE FUTURE

Important Facts

- Genetic engineering : Technology of controlling traits of organisms by bringing about desirable changes in the genetic constitution of organisms
- Genetic scissors : The enzyme that is used to cut genes. eg: Restriction endonuclease
- Genetic glue : The enzyme that is used for joining genes eg: ligase.
- Scope of genetic engineering : Gene therapy, Genetically modified animals and crops, Forensic test.
- Pharm animals : Genetically modified cow, pig etc.
- Genetically modified plants that can resist insects : Bt brinjal, Bt cotton, Bt maize.
- Scope of DNA finger printing
- Genetic engineering – misuse.

(PTO)

I Find out the word pair relationship and fill in the blanks.

1. Genetic scissors : Restriction endonuclease; Genetic glue : ……

   Ans: Ligase

2. Vaccination : Edward Jenner; DNA Testing : ……

   Ans: Alec Jeffreys

II Find the odd one and write the general features of the others

1.Interferon, Endorphin, Thromboplastin, Somatotropin

Ans:- Thromboplastin. Others are proteins developed through genetic engineering.

III. Correct mistakes if any, in the underlined part

1. **Junk genes** facilitate delivery of the ligated genes to the target cell.

   Ans: Bacterial plasmid (Vector)

2. **Gene mapping** is an inclusive treatment which involves replacement of disease causing genes with functional genes

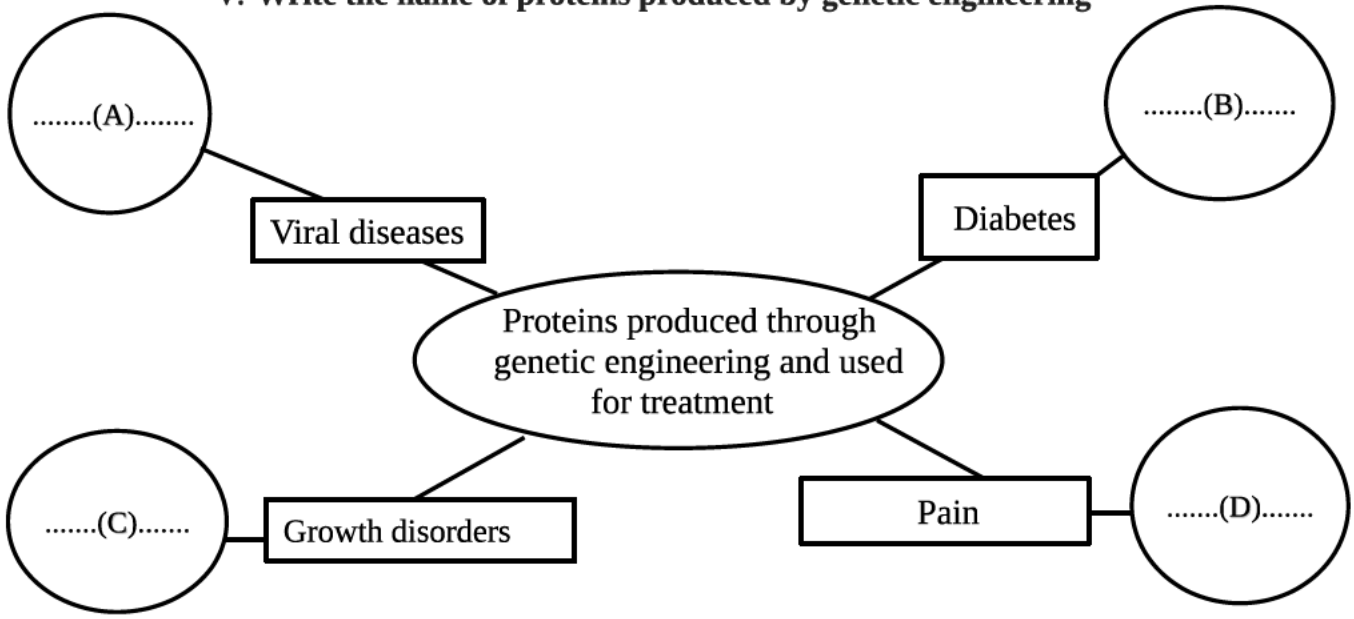
   Ans: Gene therapy

IV. Pair the statements in Column A and B suitably.

A	B
1) Junk genes 2) DNA Profiling 3) Genome 4) Gene mapping 5) Gene therapy	a) The complete genetic material present in an organism b) Technology used to identify the location of a gene in the DNA c) Method of treatment in which the genes that are responsible for diseases are removed and normal functional genes are inserted in their place d) Non-functional genes in an organism e) The technology of testing the arrangement of nucleotides

Ans :- 1 – d (2) – e (3) - a (4) – b (5) – c

V. **Write the name of proteins produced by genetic engineering**



Ans:- A –Interferons **B -** Insulin **C -** Somatotropin **D -** Endorphin

(PTO)

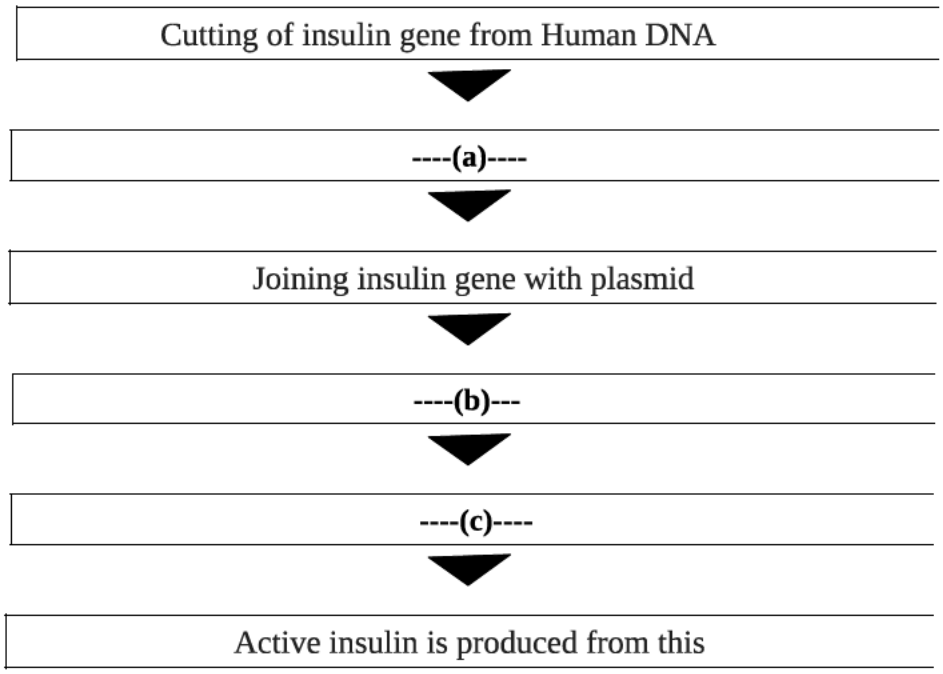
VI. Complete the table according to the Model given.

Merits of Genetic engineering	De-merits of Genetic engineering
Gene Therapy	Genetic modification violation of rights
.....(a).....	.....(c).....
.....(b).....	.....(d).....

Ans :- (a) – DNA fingerprinting (b) – Pharm animals

(c) – Bio-weapons - a new challenge (d) – Threat to Indigenous varieties

VII. Complete the following flow chart related to the Production of insulin through genetic engineering ?



Ans : **a.** Isolation of plasmid from bacteria

b. Plasmid with ligated insulin gene is inserted in to bacterial cell

c. Bacteria that multiply in the culture medium produce inactive insulin

VIII. Choose the correct statements from the table about the Scope of DNA finger printing.

a) To find out hereditary characteristics **(b)** To produce medicines
c) To identify real parents in parental disputes **(d)** To locate genes in DNA
e) To identify persons found after long periods of missing due to natural calamities or wars **(f)** To treat genetic diseases
(g) To identify real culprit in crimes

Ans:- **(a), (c), (e), (g)**

(PTO)

Chapter-8

THE PATHS TRAVERSED BY LIFE

Important facts

- Panspermia hypothesis : Life originated in Some other planet in the universe and accidently reached the earth.
- Chemical evolution Theory : Life originated as a result of the changes that occurred in the chemical substance is sea water.
- The organic compound synthesised by Urey-Miller experiment : Amino acid
- Lamarckism : Jean Baptist Lamarck. Acquired characters are inheritable
- The renowned text of Darwin : Origin of Species by Means of Natural selections.
- Theory of Natural selection : Among offsprings formed by overproduction, those with favourable variation survive and others are eliminated. This process is called Natural Selection
- Neo Darwinism: The modified version Darwinism in the light of new information.
- Mutation theory : Hugo de Vries
- Fossils : Fossils are the remnants of primitive organism.
- Homologous Organs : Organs that are similar structure and perform different functions
- Anthropoidea : Includes Cercopithecoidea and Hominoidea
- Hominoidea : Man, Chimpanzee, Gorilla, Oranguttan, Gibboy.
- Cercopithecoidea : Monkeys

I Find out the word pair relationship and fill in the blanks.

1 Lamarck : acquired characteristics; ……: Natural selection
Ans: Charles Darwin

2 Monkeys : Cercopithecoidea; Man : …….
Ans: Hominoidea

II Find the odd one and write the general characteristic of the others.

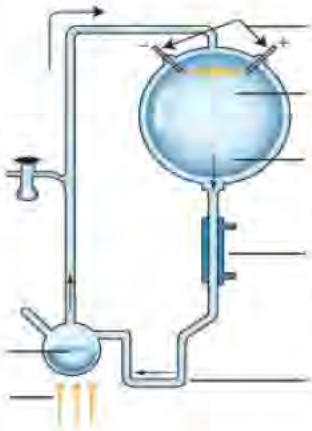
1 Amino acid, monosaccharide, polysaccharide, nitrogenous base
Ans:- Polysaccharide. Others are simple organic molecules that originated in early Earth.

2 Gorilla, Chimpanzee, Monkey, Orangutan

Ans:- Monkey. Others belong to Hominoidea

(PTO)

III. Analyse the figure and answer the questions that follow



a) Name of this experiment ?

b) Which are the chemical substances used in this experiment ?

c) Which is the biomolecule formed in this experiment ?

d) Which hypothesis got more acceptance after this experiment ?

Ans:-

a) Urey-Miller Experiment.
b) Methane, Ammonia, Water vapour , Hydrogen.
c) Aminoacids .
d) Oparin- Haldane hypothesis .

IV. Choose the main ideas of Theory of natural selection from the box and write them in right order.

a. Organisms with favourable variations and non favourable variations.
b. Every species produces more number of offsprings than that can survive on earth.
c. Favourable variations are transferred to the next generation , they got accumulated and inherited through generations . Those with non favourable variations got eliminated.
d. Organisms compete with one another for food, space and mates

Ans:- Order - **b, d, a, c**

V. **Correct the mistakes if any, in the underlined part of given statements**

a) **Panspermia hypothesis** states that life originated as a result of the changes that occurred in the chemical substances in seawater, under specific conditions in primitive earth.

b) **Mutation theory** states that acquired characters accumulate through generations and lead to the formation of new species.

Ans:- (a) Chemical evolution theory (b) Lamarckism

VI. The major events related to the origin of life as illustrated in the geological time scale are given below. Arrange them in correct order.

Prokaryotes, Eukaryotic colony, Eukaryotes, Primitive cell, Multicellular organisms

Ans:-Primitive cell ⟹ Prokaryotes ⟹ Eukaryotes ⟹ Eukaryotic colony ⟹ Multicellular organisms

(PTO)

VII. Re-write the main stages in the history of human evolution in correct order.

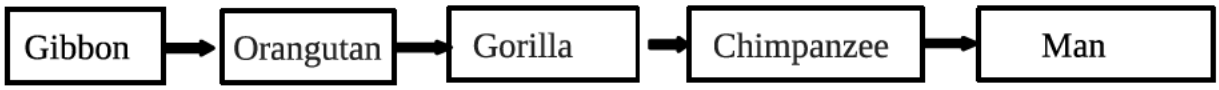
* Homo habilis
* Homo neanderthalensis
* Australopithecus afarensis
* Homo sapiens
* Homo erectus
* Ardipithecus ramidus

Ans:–

a) Ardipithecus ramidus
b) Australopithecus afarensis
c) Homo habilis
d) Homo erectus
e) Homo neanderthalensis
f) Homo sapiens

VIII. Arrange the following in correct order

Ans:_



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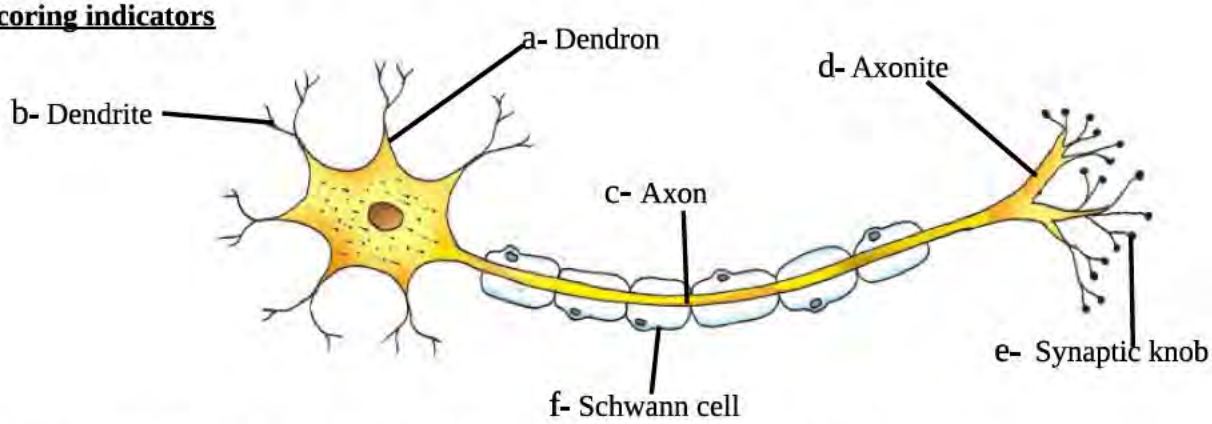
Important Pictures

1. Redraw the figure and label the following parts, by writing their names.

a) Short filament from the cell body.
b) Part that receives impulses from adjacent neuron.
c) Part which carries impulses from the cell body to outside.
d) Carries impulses to the synaptic knob. **or** Branches of axon.
e) Part which secretes neurotransmitter. **or** Tip of axonite.
f) Cell which encircles the axon.

Scoring indicators



2. Redraw the figure and label the following parts, by writing their names

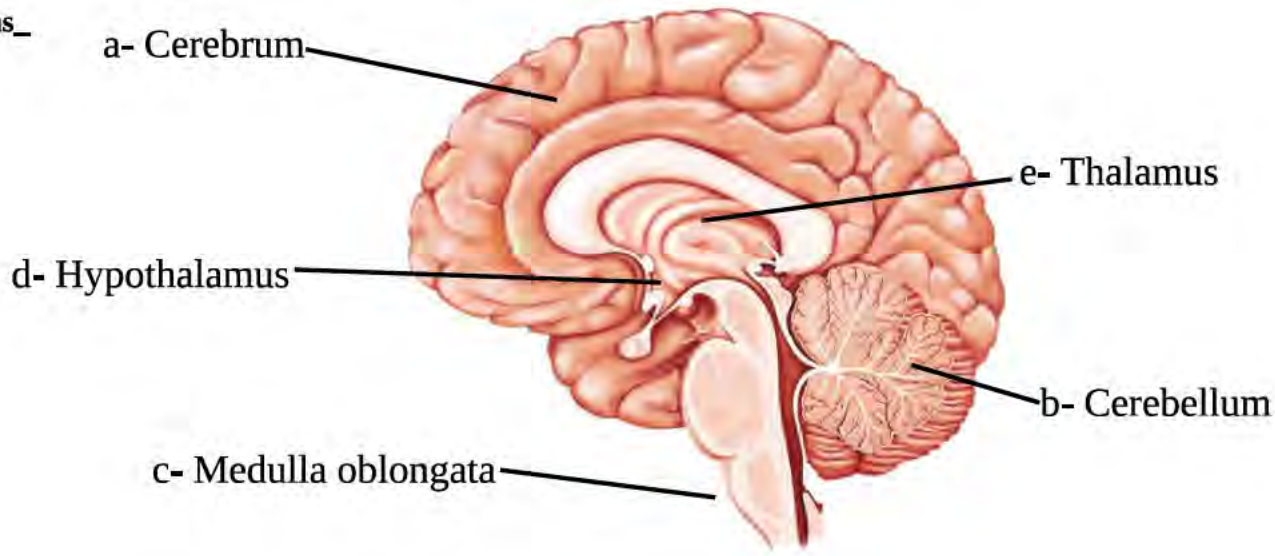
(a)
* The largest part of the brain.
* Centre of thought, intelligence, memory and imagination.
* Part which evokes sensations.
* Part which controls voluntary movements.

(b) Part which co-ordinates muscular activities and maintains equilibrium of the body.
(c) Part which controls involuntary actions like heart beat, breathing etc.

(d)
* Part which plays a major role in the maintenance of homeostasis.
* Part which is situated just below the thalamus

(e) Part which acts as relay station of impulses

Ans_



3. Redraw the figure of Eye and label the following parts by writing their name

a) The projected transparent anterior part of the sclera

b) The white outer layer which gives firmness to the eye

c) The inner layer which has photo receptors.

d)
* The aperture seen at the centre of the iris.
* Aperture which automatically regulate its size according to the intensity of light

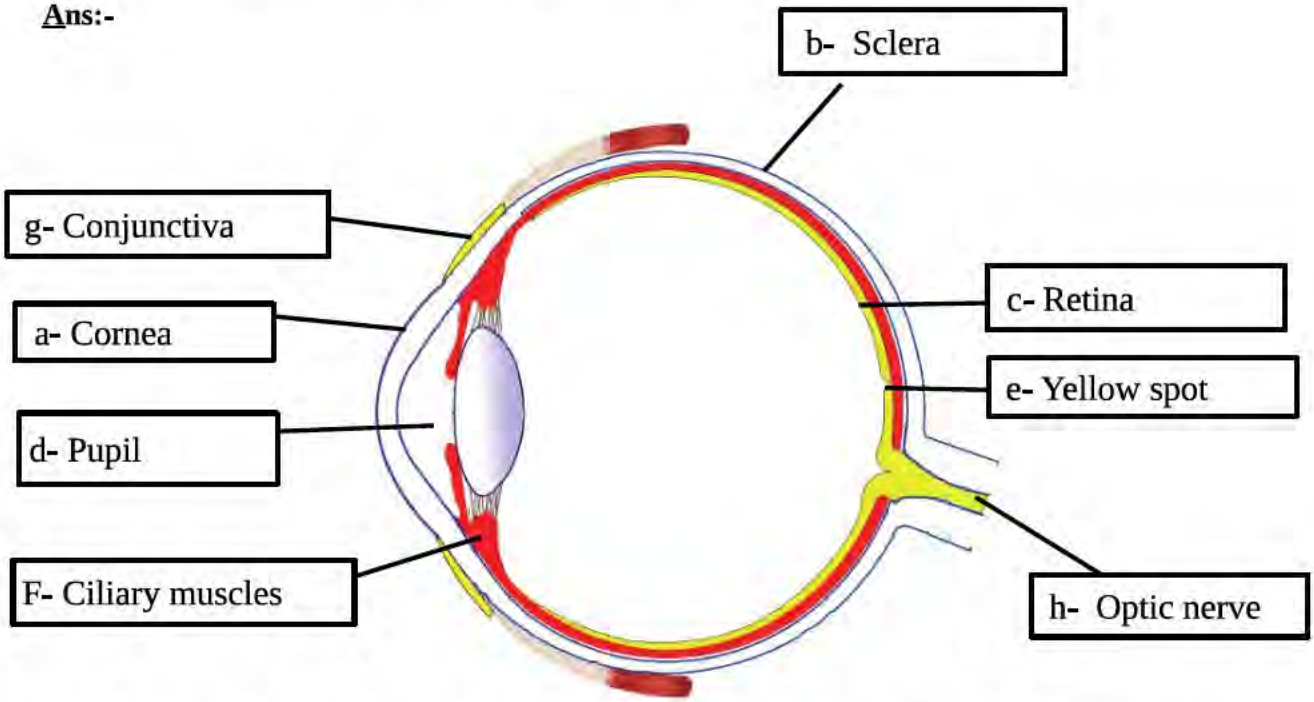
e) The part of the retina where plenty of photo receptors are present.

f) Muscles which alter the curvature of lens. **or** Circular muscles seen around the lens

g) The layer which covers and protects the front part of sclera except the cornea.

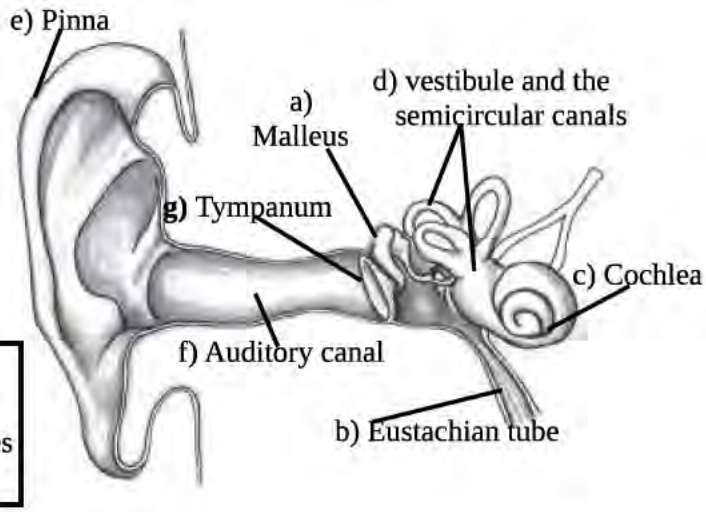
h) Transmits impulses from photo receptors to the visual centre in the brain.

Ans:-



4. **Redraw the figure of Ear and label the following parts by writing their name**

a) Part which receives vibrations from Tympanum
b) Tube which connects with pharynx.
c) Part where auditory receptors are seen.
d) Part which help in Body balancing.
e) Part Carries sound waves to the auditory canal
f) Part which Carries sound waves to the tympanum



g)
* Part which separates External ear and Middle ear
* Part Which vibrates in resonance with sound waves